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July/August 2009

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Cover: Hagia Sophia, or the Church of "Holy Wisdom" in Byzantine Constantinople (modern Istanbul) was first built by the emperor Justinian I in A.D. 537. It has also been a mosque and a museum.

PHOTO: JESSE DUROCHER/GETTY IMAGES

SACRED STONE OF THE SOUTHWEST IS ON THE BRINK OF EXTINCTION



Centuries ago, Persians, Tibetans and Mayans considered turquoise a gemstone of the heavens, believing the striking blue stones were sacred pieces of sky. Today, the rarest and most valuable turquoise is found in the American Southwest— but the future of the blue beauty is unclear.

On a recent trip to Tucson, we spoke with fourth generation turquoise traders who explained that less than five percent of turquoise mined worldwide can be set into jewelry and only about twenty mines in the Southwest supply gem-quality turquoise. Once a thriving industry, many Southwest mines have run dry and are now closed.

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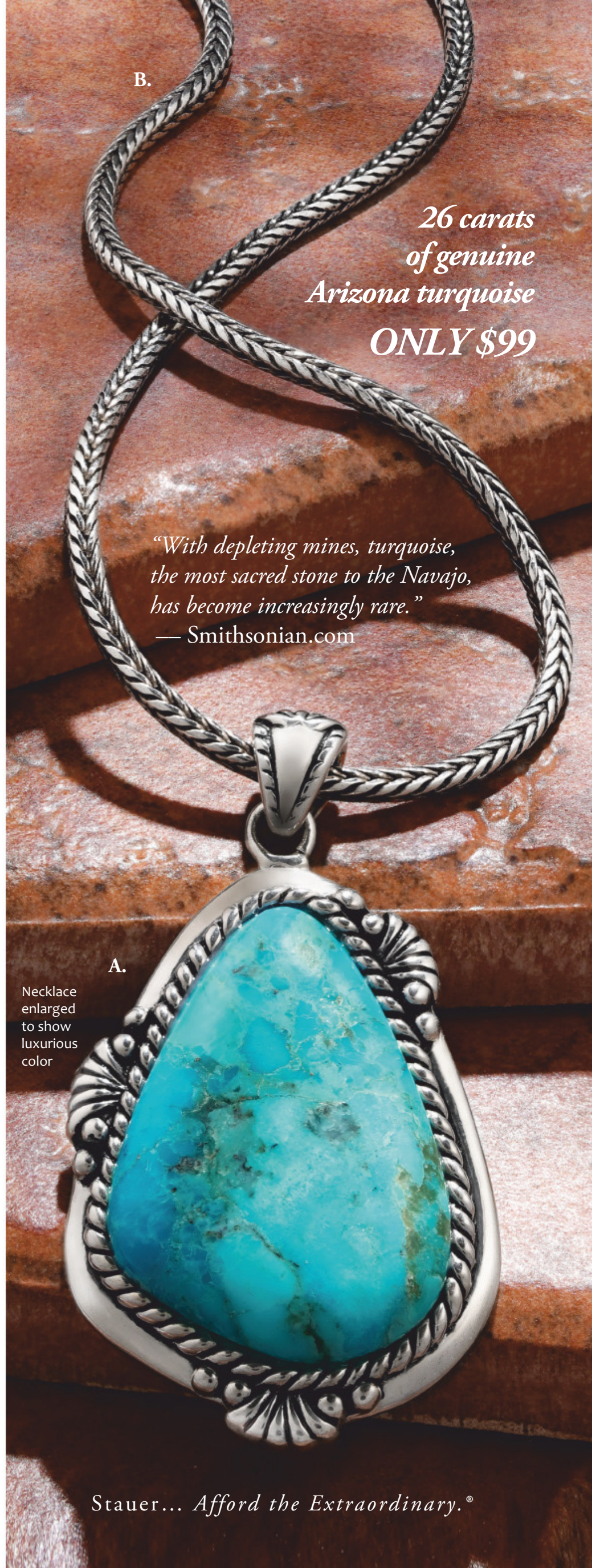
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More than 75 years after D-Day, the Allied invasion's impact on the French landscape is still not fully understood

BY JARRETT A. LOBELL

ARCHAEOLOGY.ORG

■ **MORE FROM THE ISSUE** To watch a video of runologist Henrik Williams reading the Rök runestone's inscription, go to archaeology.org/rok. To see more Sogdian murals, go to archaeology.org/sogdians

■ **FURTHER READING** To read more about Hagia Sophia, the Sogdians, and D-Day, go to archaeology.org/furtherreading.

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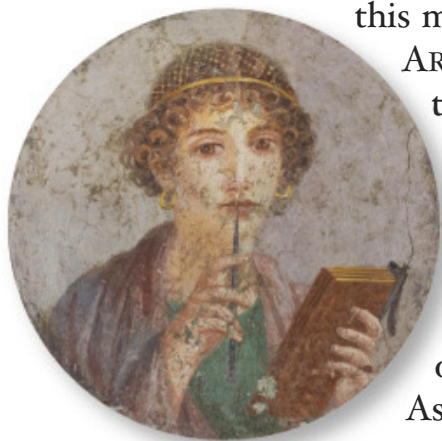


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EDITOR'S LETTER

AN UNPRECEDENTED JOURNEY

As those of you who visit archaeology.org know, since the day we sent the May/June issue of *ARCHAEOLOGY* to the printer, our offices in New York have been temporarily closed due to the pandemic, and we have been working at home to create this current issue for you. In extraordinarily challenging times such as these, I am reminded that it is always people, their dedication, and their resilience that matter most. I would like to take this moment to recognize and introduce you to the people who craft *ARCHAEOLOGY* and to express my heartfelt gratitude for everything they do, and especially for what they have accomplished over the last few months. For me, this issue represents the best of who we are as editors and writers.



With each issue, we strive to introduce you to new cultures and rarely visited locations, as deputy editor Eric A. Powell does in "A Silk Road Renaissance," in which you will meet the Sogdians, an often-forgotten culture that mastered the trading routes of Central Asia from the fifth to the eighth century A.D. We also often take you to the world's iconic sites, as senior editor Benjamin Leonard does in "Hagia Sophia's Hidden History," where he brings you up to date on the latest explorations of Constantinople's great cathedral, a place about which you may have thought scholars had already learned all there is to know.

We particularly relish reintroducing you to beloved cultures such as the Vikings, as senior editor Daniel Weiss does in "The Emperor of Stones," in which a multidisciplinary team takes another crack at deciphering a 1,200-year-old inscription. Despite having been studied for more than a century, the runic writing has resisted previous efforts at interpretation. And we want to show you how ancient cultures were impacted by new arrivals, as is the case in the story told by associate editor Marley Brown in "Idol of the Painted Temple," which traces the journey of a carved statue from its creation through encounters with the diverse peoples who controlled coastal Peru for nearly a millennium.

We always want you to be invested in articles about our shared and sometimes more recent past. For my part, I have written about the archaeology of D-Day and the Battle of Normandy in "The Legacy of the Longest Day." And, without the collaboration and skill of our creative director Richard Bleiweiss, who brings our words and images together in such masterful ways, none of this would be possible.

Right now, we are all armchair archaeologists, but that will not always be the case. We have heard from many of you that you are grateful to have had us as your companion during the recent months, when you may have spent more time at home than you had planned. Whatever the world brings us, we will continue to share with you the discoveries that have been *ARCHAEOLOGY*'s signature for more than 70 years.

Jarrett A. Lobell
Editor in Chief

ARCHAEOLOGY

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FROM THE PRESIDENT

ARCHAEOLOGY IN THE AGE OF PANDEMIC

The coronavirus has challenged us all, but the Archaeological Institute of America (AIA) is meeting those challenges with the help of committed professionals, dedicated staff, and inspired enthusiasts in creative ways.

Advocacy for archaeology, cultural heritage, and the protection of sites is needed now more than ever. The AIA was founded in 1879 to help preserve sites in the southwestern United States that were being looted at an alarming rate. In 2020, the AIA's advocacy for American archaeology continues with our recent support of increased funding for cultural resources and National Conservation Lands under the Bureau of Land Management (BLM). This funding aims to continue BLM's collaboration with State Historic Preservation Offices in the western part of the country to inventory and monitor cultural resources within the more than 35 million acres of National Conservation Lands, nationally significant places so designated for their outstanding historic, cultural, ecological, and scientific value.



A cake model of the Colosseum created by the Macri family

While most summer excavation seasons have been canceled, AIA professionals like Dr. Kim Shelton of the University of California, Berkeley, have set up virtual field schools. Shelton excavates the sites of Nemea and Mycenae in Greece. This summer she will remotely provide students with scanned archival material such as field notebooks, photos, and drawings of finds. The students will first format this material into database entries for a publication-ready catalog and then learn

how to evaluate the stratigraphy and assemblages within trenches. Working in teams, as archaeologists do in the field, they will collaborate to identify archaeological phases across the sites that will then be interpreted based on chronology and features. This will give Shelton's remote field school students valuable experience working with older excavation material, which is something nearly all archaeologists do.

Similarly, as the coronavirus crisis has forced the cancellation of the AIA's spring lecture series, archaeology enthusiasts in AIA societies like the one in Spokane have turned to technology, hosting five lectures and discussions on the topic "Revealing Pompeii" through live webinars. The AIA also launched its successful "Build Your Own Monument" competition in April and May, challenging young people, families, and adults to use materials they had on hand to re-create iconic archaeological monuments from around the world (above). The creative ingredients of this contest are themselves artifacts of the quarantine—cardboard toilet paper rolls, cereal boxes, food including bread, beans, cheese, and matzo, and even a wasp's nest. Some 25,000 people visited the competition's website (archaeological.org/build-your-own), which showcases how archaeology can educate, entertain, and inspire, even at a time of uncertainty.

ARCHAEOLOGY magazine is a publication of the AIA. By subscribing, you are supporting our work and our mission to excavate, educate, and advocate. Thank you.

Laetitia La Follette

President, Archaeological Institute of America

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Excavation at the
Curetes Street, Ephesus, Turkey.
Photo courtesy Niki Gail.



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Eric Blind, Presidio Trust archaeologist, with Ellen and Charles S. La Follette in the archaeology lab at The William Penn Mott, Jr. Presidio Visitor Center, San Francisco, CA.

For **Charles S. La Follette**, creating a personal legacy through a planned gift in his will was a natural extension of his involvement with the Archaeological Institute of America and his commitment to archaeological research and education. **"I joined the Norton Society to help the AIA continue its wonderful archaeological programs for generations to come,"** says Charles. With his bequest, he is confident that the AIA will continue to provide professional archaeologists with resources critical to their work and lifelong learning opportunities for everyone who loves archaeology.

FROM OUR READERS

MEDIEVAL IRISH ENTERTAINERS



I very much enjoyed “Inside a Medieval Gaelic Castle” (March/April 2020). However, the most amusing aspect of the article was not even mentioned. In the woodcut by John Derrick there are two gentlemen to the far right who appear to be airing their backsides to the assembled lords. I hope you will provide an explanation, and I’m betting it will be a doozy!

Joe Feldman
Corrales, NM

There was, in fact, a professional class of jesters in medieval Ireland called *Braigetóir* whose specialty was, indeed, farting for lords’ and ladies’ entertainment.—*The Editors*

ARCHAEOLOGY welcomes mail from readers. Please address your comments to ARCHAEOLOGY, 36-36 33rd Street, Long Island City, NY 11106, fax 718-472-3051, or e-mail letters@archaeology.org. The editors reserve the right to edit submitted material. Volume precludes our acknowledging individual letters.

LIVING THE HIGH LIFE

I enjoyed reading “Villages in the Sky” in your May/June 2020 issue. It did, however, arouse my curiosity. A map in the article shows four widely separate ranges in the western United States where high-elevation Shoshone villages have been found. But right in the middle of the map is a vast blank area—the state of Utah. Utah has the Uinta Mountains, which have peaks rising more than 13,000 feet. Have archaeologists looked for high-elevation Shoshone villages there? I pass my observations on not as a criticism or to argue, but in the spirit of sharing information and asking questions. I enjoy ARCHAEOLOGY very much. Thank you for your efforts in publishing it.

Michael Owen
Dorchester, MA

Matt Stirn replies:

There have been a few discoveries of prehistoric residential sites up high that resemble the Numic—the language group that Shoshone and Ute are part of—villages in California, Nevada, and Wyoming. If we assume that alpine villages were part of Numic lifestyles across the western United States, stretching from California to Wyoming, then there are likely dozens, if not more, of these sites that remain undiscovered. Utah has a long history of prehistoric mountain use, and there is a lot of potential for future work. Because alpine archaeology is relatively new, very little of the alpine terrain across the West has been surveyed archaeologically.

However, a lack of fieldwork isn’t the only reason that there are fewer or no alpine villages in some mountains. For reasons that are currently unknown, prehistoric alpine villages appear in certain mountain ranges but not others, even though the environments are nearly identical. Even in the Wind River Range, this pattern is seen on a more localized level. Villages there seem to exist primarily in the northern part of the range more frequently than in the south. It’s unclear if choosing one range over another is cultural, environmental, climatic, or perhaps a combination.

CARVING SKILLS

Do you have any idea of the cost in man hours or months it would have taken to carve the reliefs at Faïda (“The King’s Canal,” May/June 2020)? Were the carvers a special artisan class or slaves or some other group?

Joel Achtenberg, MSW, LCSW (ret)
St. Louis, MO

Daniele Morandi Bonacossi replies:

It’s impossible to tell for sure, but I don’t think the carving of the sculpted panels from the soft limestone bedrock at Faïda would actually have required a huge amount of work for a team of skilled artists. The carvers were certainly part of a special artisan or, better said, artist class. Expert court technicians, mostly scribes of the royal chancery, probably supervised the creation of the reliefs in terms of their composition and antiquarian details.



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DIGS & DISCOVERIES

CHINESE DONKEY POLO, ROMAN BOATS ON THE DANUBE, ENGLAND'S FIRST NUN, AND MUCH MORE

THE EMPEROR OF STONES

In the language of the Vikings, Old Norse, *rök* means “monolith,” and no other runestone stands out from its peers in more ways than Sweden’s Rök. The five-ton stone measures eight feet tall and its five sides are covered with the longest runic inscription in existence—some 760 runes divided into 28 lines. And, while the vast majority of runestones date to after the mid-tenth century A.D., the Rök was inscribed much earlier, around A.D. 800. “It’s the emperor of runestones,” says Henrik Williams, a runologist at Uppsala University. “Nothing can compare with it.”

Although scholars are united in recognizing the Rök’s singularity, with regard to its meaning all they can agree on is that it was set up by a local chieftain named Varinn as a memorial to his son Vamoth. The stone’s inscription has defied attempts at interpretation since the mid-nineteenth century, when it was transcribed after the Rök was removed from a structure into which it had been built centuries earlier. Decoding the inscription is made especially difficult as it features several styles of writing, including the earliest form of runes, called Elder Futhark, and two types of cipher. It’s not clear in what order the sections of the text are supposed to be read—or if it was even intended to be understood by mortals at all. “I don’t think this was ever meant to be read by humans,” says Bo Gräslund, an archaeologist at Uppsala University. “It was only meant for the gods.”

Now, a team composed of Williams, Gräslund, University of Gothenburg linguist Per Holmberg, and Stockholm University historian of religion Olof Sundqvist has developed a new interpretation of the inscription that ties it to themes in Norse mythology and to a devastating sixth-century climate crisis. The very beginning of the inscription—scholars generally agree it is the beginning—describes Vamoth as “death-doomed.” While most runestones memorialize the dead, says Williams, this phrase is unique

to the Rök and suggests that the young man was fated to die for a particular reason.

Based on a number of allusions strewn throughout the inscription, the researchers believe that Vamoth perished so he could join the army of the chief Norse god, Odin, in

Rök runestone, Sweden



Ragnarok, the apocalyptic battle pitting the Viking gods against their enemies, the giants. In one section, the researchers have detected a reference to one of the chief giants, the monstrous wolf Fenrir, swallowing the sun, the act that sets Ragnarok in motion. Another section describes Fenrir facing off against 20 kings—members of Odin’s army—on the Grove of Sparks, a name for the Ragnarok battlefield. And, near the end of the inscription, the team has gleaned a reference to Odin’s son Vitharr, who vanquishes Fenrir after the creature kills his father. Only then can the sun’s daughter take her mother’s place in the sky.

For the team, another key to the

inscription’s meaning is found in a line that mentions someone “who nine generations ago lost their life.” Given that the runestone dates to around A.D. 800, and allowing 30 years per generation, this event would have occurred in the early sixth century. The scholars believe the line describes the death of the sun and refers to a period beginning in A.D. 536 when a series of volcanic eruptions is known to have blocked sunlight for several years, leading to mass starvation.

This reference to events of nearly three centuries earlier, the researchers suggest, was likely prompted by a number of happenings reminiscent of

those harrowing times. “We know that there were solar storms that turned the sky red and would have caused very cold summers,” Williams says. “And there was a near-total solar eclipse that would have scared the hell out of people.” With the threat of a crisis looming, Vamoth is described on the runestone as having been cut down before his time in order to help Odin’s army defeat the giants, ensuring that the sun would continue to shine.

—DANIEL WEISS

To watch a video of Henrik Williams reading the Rök runestone’s inscription, go to archaeology.org/rok.

OFF THE GRID CASTLERIGG, ENGLAND

When some of the first British farmers to live in the Lake District needed to gather at a central location, they may have chosen Castlerigg Stone Circle, a Neolithic monument built some 5,000 years ago. The circle measures almost 100 feet in diameter and consists of 38 stones varying in height from 3.5 to 7.5 feet. Later Bronze Age stone monuments often contain burials, but no human remains have been discovered at Castlerigg. Rather than serving as a memorial to the dead, the circle likely hosted a mix of community functions. “A helpful analogy is the medieval parish church, which was a religious center, but also often the site of social gathering and the marketplace,” says archaeologist Tom Clare, emeritus of Liverpool John Moores University.

At the time Castlerigg was built, much of northern Europe was heavily forested, and the Lake District’s valley bottoms were often filled with standing water or dense swampland. “Castlerigg’s position on a low ridgeline at the center of three valleys would have placed it along a traversable pathway for farmers moving livestock from higher pastures in summer months down to lower elevations for the winter,” explains ecologist David Wilkinson of the University of Lincoln. Some of the stones at Castlerigg that were lying on their side when antiquarians such as William Stukeley observed the site in the eighteenth century have since been put upright. Clare cautions that making exact determinations about the cosmological or spiritual meaning of the monument to those who built it may never be possible. Still, the task of raising the stones of Castlerigg would have required a level of effort in proportion to its profound importance to the community. “One generation might have added to what the previous generation did,” Clare says. “Part of the process of being involved in this society was that you contributed labor, you helped contribute to these communal structures.”

THE SITE

The stone circle is most easily accessible by car and the route is well marked from the neighboring town of Keswick. Visitors can park along the road approaching the circle—be prepared to walk uphill. On



reaching the field, look for a wide gap in the circle flanked by two tall stones. This may have been the entrance to the monument and is a feature also found in earlier Neolithic timber structures. This

similarity has led some researchers to suggest Castlerigg may be a particularly early example of a Neolithic stone circle.

WHILE YOU’RE THERE

The Lake District may be as well known for its literary heritage as it is for its physical majesty, and many of the so-called Lake Poets were inspired by Castlerigg. After leaving the site, take a 15-minute drive south to the village of Grasmere to visit the Wordsworth Trust. Then continue south another 11 miles to tour Beatrix Potter’s Hill Top farmhouse.

—MARLEY BROWN

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ICE AGE ICE BOX



Circular mammoth-bone structure, Kostenki, Russia



Mammoth bones in situ

When a circular structure measuring more than 40 feet in diameter, made entirely from mammoth bones, was discovered in western Russia in 2014, its purpose was unclear. Now, researchers have investigated debris from the site of Kostenki, which is located along the Don River just south of the Russian city of Voronezh and was inhabited by hunter-gatherers some 25,000 years ago.

By separating possible evidence of human habitation, such as charcoal produced by fires, from sediment, they determined that the structure was likely not used for shelter. “The density of this debris was far less than we’d expect to see if it was an intensively occupied dwelling,” says archaeologist Alexander Pryor of the University of Exeter. It would have been difficult to build a roof on such a large structure, he adds. Furthermore, many of the bones used to build it appear to have had fat and cartilage still attached to them, which would have created a smelly, unhygienic environment. Instead, Pryor suggests, the structure may have been used to store food, possibly allowing the community to eat well while remaining at the site for weeks or even months at a time.

—MARLEY BROWN

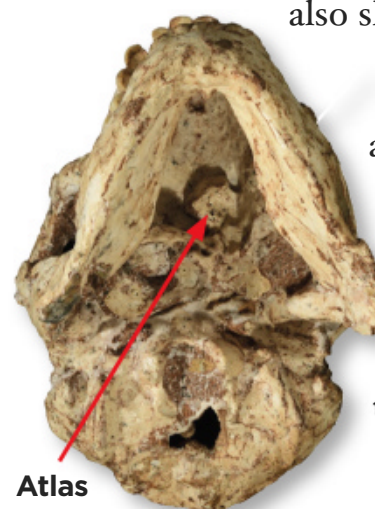
STICKING ITS NECK OUT

Skulls receive most of the attention in the study of human evolution, but the atlas vertebra, which sits just beneath the cranium at the top of the spinal column, can also provide valuable information about humanity’s early ancestors. Atlas vertebrae rarely survive in the fossil record, but the skeleton of “Little Foot,” a 3.67-million-year-old human ancestor belonging to the species *Australopithecus prometheus*, which was discovered at the site of Sterkfontein in South Africa, includes a particularly well-preserved example. An international research team recently made a



Little Foot skull

micro-CT scan of Little Foot’s atlas vertebra. It revealed that the australopithecine had already evolved a humanlike head posture even though it had an ape-size brain measuring just one-third the size of a modern human brain. The scan



Atlas vertebra

also showed that, compared with modern humans, blood flowed through the atlas vertebra to Little Foot’s brain at a much lower rate. According to Amelie Beaudet of the University of the Witwatersrand, this indicates that australopithecines probably did not eat the calorie- and protein-rich diet that allowed larger brains to evolve.

—ZACH ZORICH

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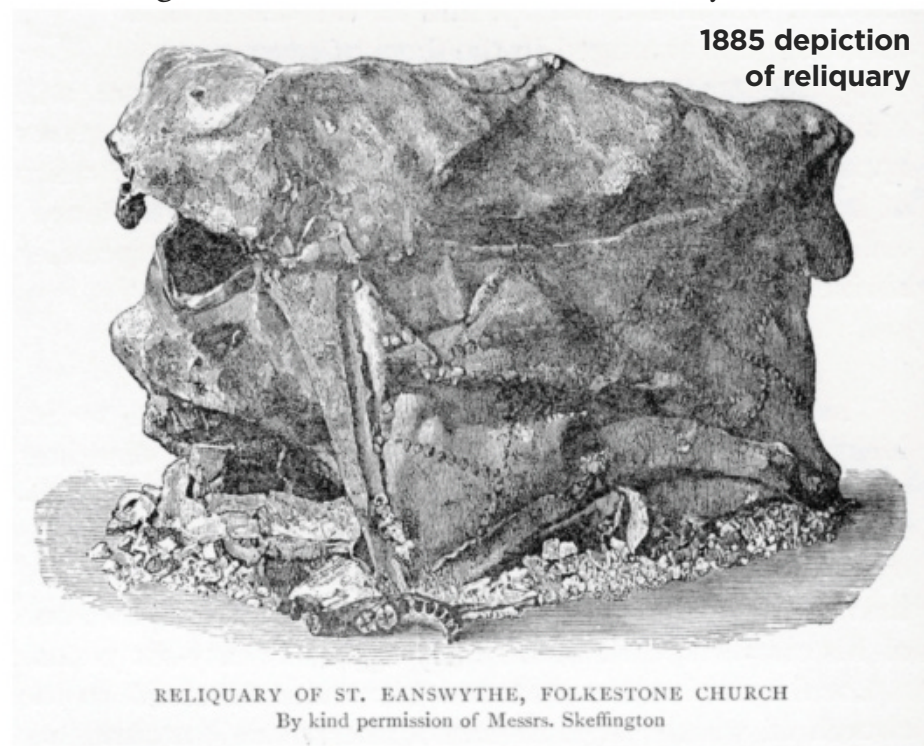
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ID'ING ENGLAND'S FIRST NUN

Many people in the port town of Folkestone in southeastern England still revere Saint Eanswythe, a seventh-century Anglo-Saxon princess who helped found Folkestone Priory, the first nunnery in England. Her remains were thought to have been interred at the priory until the 1530s, but went missing after Henry VIII dissolved the country's monasteries. In 1885, a lead container with human bones was discovered concealed in a wall near the priory's altar. It was long assumed the relics were Saint Eanswythe's, and that



they had been hidden to protect them from the Tudor king's machinations. Now, work on the reliquary led by Canterbury Archaeological Trust archaeologist Andrew Richardson has provided new evidence that the remains are in fact those of the missing holy woman.

The team's study shows that the container dates to around the eighth century, and that the remains belonged to a young woman of about 20 years old who lived in the mid-seventh century. Says Richardson, "The strong probability is that this young person, concealed in a prestigious location within a church known to have housed her remains, is indeed Eanswythe."

—ERIC A. POWELL

PLAY BALL!

The discovery of a 3,400-year-old ball court in the southern Mexican state of Oaxaca has led archaeologists to reconsider the origins of a popular ancient Mesoamerican sport. Although several different types of ball game were played by the Olmecs, the Maya, and the Aztecs, the best-known version was contested on a monumental stone court and involved players knocking around a rubber ball using their



hips. (See "From Head to Toe in the Ancient Maya World," page 44.) The earliest evidence for these ball courts dates to around 1650 B.C. and their prevalence at sites near the Gulf Coast and in the Pacific coastal lowlands has led scholars to believe that the game was developed in that region. However, recent excavations at the highland site of Etlatongo have uncovered two of these structures, as well as ballplayer figurines, suggesting that highland societies were playing the ball game almost as early as their lowland counterparts. One of the courts dates to between 1443 and 1305 B.C., making it 800 years older than any other playing field previously found in a highland context. "The discovery of these ball courts in Oaxaca indicates that highland groups were important players in the development of the formal ball game," says George Washington University archaeologist Jeffrey Blomster. "The hip-ball game's development was an important part of the establishment of Mesoamerican civilizations, and multiple regions were involved in its origin."

—JASON URBANUS

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HISTORY IN ICE

Lead pollution levels from the Middle Ages preserved in an ice core taken from Colle Gnifetti glacier in the Swiss Alps reflect political upheaval in England, some 500 miles away, a multidisciplinary research team has found. In addition to studying archaeological data and tax records, the researchers used lasers to measure how lead levels in the core changed from year to year. They observed a major spike in lead pollution during the reign of the English Angevin kings—Henry II, Richard I, and John—between 1154 and 1216, when economic growth led to an increase in silver and lead production from British mines. Lead particles from the extraction and smelting processes were carried southeast by weather patterns, and traces of the metal were trapped in Swiss glaciers.

The researchers noticed fluctuations in annual pollution levels, which they were able to correlate with specific historical events. During wartime or when a monarch died, lead production dipped, leading to lower levels. When a new monarch was secure, there were usually major building projects that required an increase in revenue and raw materials, which, in turn, produced more pollution. Specific occurrences that appear to match changes in lead pollution levels include the death of Henry II, in 1189, Richard I's absence during the Third Crusade, from 1190 to 1194, and the assassination of Thomas Becket, archbishop of Canterbury, in 1170. "The whole team was very surprised at the extent of demonstrable association between political events, lead production, and lead and silver pollution in the glacier," says University of Nottingham archaeologist Christopher Loveluck. "It was one of those 'X marks the spot' moments that never happen."

—JASON URBANUS



Colle Gnifetti glacier, Switzerland

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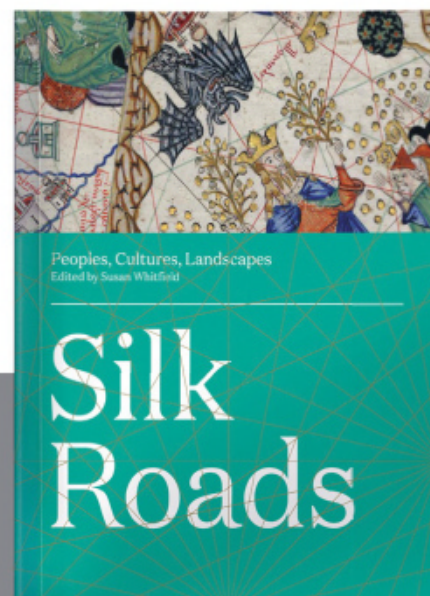
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It's a cruel fact of life, as we age, gravity takes over. Our muscles droop, our bodies sag and the weight of the world seems to be planted squarely on our shoulders. We dread taking a fall, so we find ourselves walking less and less- and that only makes matters worse.

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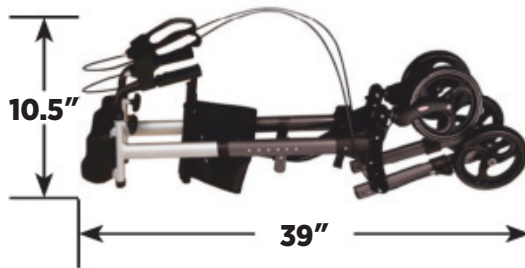
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Preserved ship, Drmno, Serbia



Part of preserved *monoxyle*, Drmno, Serbia

ROMAN RIVER CRUISER

Strip miners in the eastern Serbian town of Drmno uncovered a flat-bottomed ship and two *monoxyles*, or dugout longboats, along the banks of an ancient tributary of the Danube near the garrison at the Roman city of Viminacium. Measuring nearly 50 feet long and built for navigating shallow waters, the ship, which carried a crew of between 30 and 40, was used for either transport or combat. The timber-carved longboats were of a type used by the Avars and other nomadic groups who attacked the Romans at Viminacium. All three vessels likely date to the Roman period, explains archaeologist Miomir Korać of the Institute of Archaeology in Belgrade. “There is a possibility that the monoxyles were part of the invasion fleet that ultimately ended life as the Romans knew it at Viminacium in the early seventh century A.D.,” he says. “It looks like they were simply abandoned on the banks.”

—BENJAMIN LEONARD

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PRIZED POLO...DONKEYS?

Remains of three small donkeys unearthed in a noblewoman's tomb in the ancient Chinese capital of Chang'an might provide the first archaeological evidence of the game *lvju*, or donkey polo. According to Tang Dynasty (A.D. 618–906) historical texts, the sport was a favorite pastime of elite women and older members of the imperial

court, providing a safer alternative to the dangerous, often fatal, version played on horseback. The sacrifice of these donkeys seems to have been a rare event carried out in honor of the deceased, a woman named Cui Shi who died in A.D. 878 at the age of 59. Her husband, Bao Gao, was a provincial governor whose horse polo-playing prowess earned him a promotion—and cost him an eye.



Tomb of Cui Shi,
Chang'an, China



Donkey
humerus

Biomechanical analysis of the donkey bones by a Chinese-American research team has shown that the animals experienced unusual patterns of locomotion, such as rapid acceleration and deceleration, that could be consistent with playing polo, explains anthropologist Fiona Marshall of Washington University in St. Louis. Whether or not these were Cui Shi's actual polo donkeys, they may have been buried with her, along with a lead stirrup, to enable her to continue to play the game in the afterlife.

—BENJAMIN LEONARD

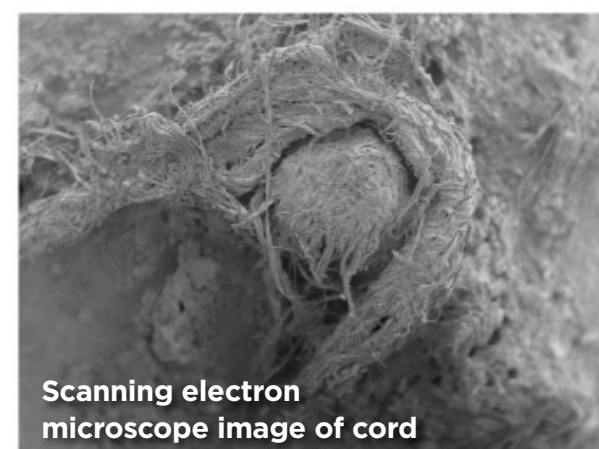
TWISTED NEANDERTHAL TECH

More than 40,000 years ago, Neanderthals living at the site of Abri du Maras in southeastern France made what is the earliest known piece of cord. This apparently simple technology is now providing insights into the workings of the Neanderthal mind, says archaeologist Bruce Hardy of Kenyon College. The cord was made of three separate strands of fiber taken from the inner bark of a coniferous tree. The bark fibers would have been harvested in the spring or early summer, soaked in water, and separated into strands. "It's not something you just sit down and do," says Hardy. The strands were then twisted in a clockwise



Abri du Maras, France

direction to hold the fibers together, after which they were twisted together in a counterclockwise motion to make the cord. This has led Hardy to believe that Neanderthals shared a cognitive capacity for mathematics with modern humans. Hardy thinks this cord-making



Scanning electron
microscope image of cord

technology may date back much further, but the earliest examples probably have not survived. "We are missing so much of what was there," he says. "Something like this gives you a window into that missing world."

—ZACH ZORICH

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FLORIDA: The Calusa Indians, who ruled much of southern Florida in the pre-Columbian era, are known for their sophisticated engineering projects. These included artificial islands and canals at their capital of Mound

Key. They also created large lagoons called watercourts out of shells and sediments. These enclosures, which date to the 14th century, acted as holding tanks, allowing the Calusa to trap and store large numbers of fish in the subtropical climate.



ENGLAND: There were no roast chickens or rabbit stews on the tables of Iron Age Britons. Chickens and brown hares, which are not native to the British Isles, only arrived sometime between the 5th and 3rd centuries B.C. Carefully

buried intact bird and small mammal skeletal remains found in Hampshire and Hertfordshire suggest that when chickens and hares did appear, they were not viewed as a food source, but instead as exotic species. They may even have been revered and associated with deities. It was not until hundreds of years later, under Roman rule, that chickens and hares began to be farm-raised and eaten.



MEXICO: An inscribed stone tablet unearthed by a cattle rancher in Lacanja Tzeltal, Chiapas, has led to the discovery of a long-lost Maya city that was

founded around 750 B.C. The existence of an important regional capital called Sak Tz'i' was known from previously discovered inscriptions, but its exact location had eluded archaeologists for decades. When researchers explored the rancher's property, they found a trove of monuments, including pyramids and a palace complex, and were able to identify the inscribed text that confirmed the site's name.



BOLIVIA: Various ancient civilizations in places such as China and the Near East are known to have independently developed agriculture thousands of years ago. New research within the Llanos de Moxos has revealed that people living in Amazonia some 10,850 years ago were also among the earliest in the world to domesticate and cultivate crops. Sediment analysis

showed that the region's inhabitants created thousands of forest islands within the otherwise treeless savannah by dumping food waste, creating fertile patches on which they were able to grow manioc, squash, maize, and other edible plants.



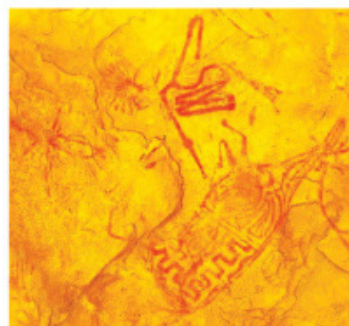
SPAIN: Before the Carthaginian general Hannibal crossed the Alps with his elephants, he

defeated a group of Iberian tribes in a pivotal 220 B.C. battle fought somewhere along the Tagus River. Ancient writers record that Hannibal's 25,000 soldiers overwhelmed an army of 100,000, but scholars have long argued over exactly where the clash took place. A new study using archaeological, historical, and geomorphological data has finally narrowed down the location to a stretch of river between the towns of Driebes and Illana in the province of Guadalajara.



GREECE: An experienced surgeon treating a soldier on the island of Thasos tried everything to alleviate his patient's debilitating infection, even performing a complex procedure that entailed boring holes in his skull. The man,

who was buried at the site of Palaikastro between the 4th and 7th centuries A.D., was probably a mounted archer in the Roman army. His severe infection may have been caused by a ruptured eardrum or possibly a tumor. The procedure was ultimately unsuccessful despite the doctor's skill.



INDIA: Nearly 300 never-before-documented rock paintings were discovered across 11 sites in Madhya Pradesh. The scenes include 67 human and 80 animal figures, among them depictions of deer, rhinoceros, wild boar, and Indian bison. While animal scenes are a common motif in ancient Indian rock

art, which dates back as far as 30,000 years, one of the newly documented paintings depicts a rare post-hunt scene of a deer being butchered. A human figure seems to be pulling an arrow from the fallen animal while in the process of disemboweling it.



INDONESIA: The ability to create figurative and portable objects of art is a characteristic that researchers believe separates *Homo sapiens* from our ancestors. Until recently though, little

evidence had been found showing that early humans who settled Southeast Asia displayed these

capabilities. But 2 tiny incised stone artifacts created between 26,000 and 14,000 years ago found in Leang Bulu Bettue Cave on Sulawesi are filling in this gap. One of the objects depicts an anoa—a local miniature buffalo—and the other displays a sunburst pattern.



ISRAEL: Hand-size stone balls have been found at numerous early Paleolithic sites around the world, but their exact purpose has baffled experts. Microscopic analysis of wear patterns and bone residues on the surface of examples found in Qesem Cave has indicated the spheres may have been shaped and used by humans between 400,000 and 200,000 years ago to crack open animal bones. Experimental trials using replicas demonstrated just how efficient these tools would have been at accessing bone marrow, which was nutrient-rich and much sought-after.



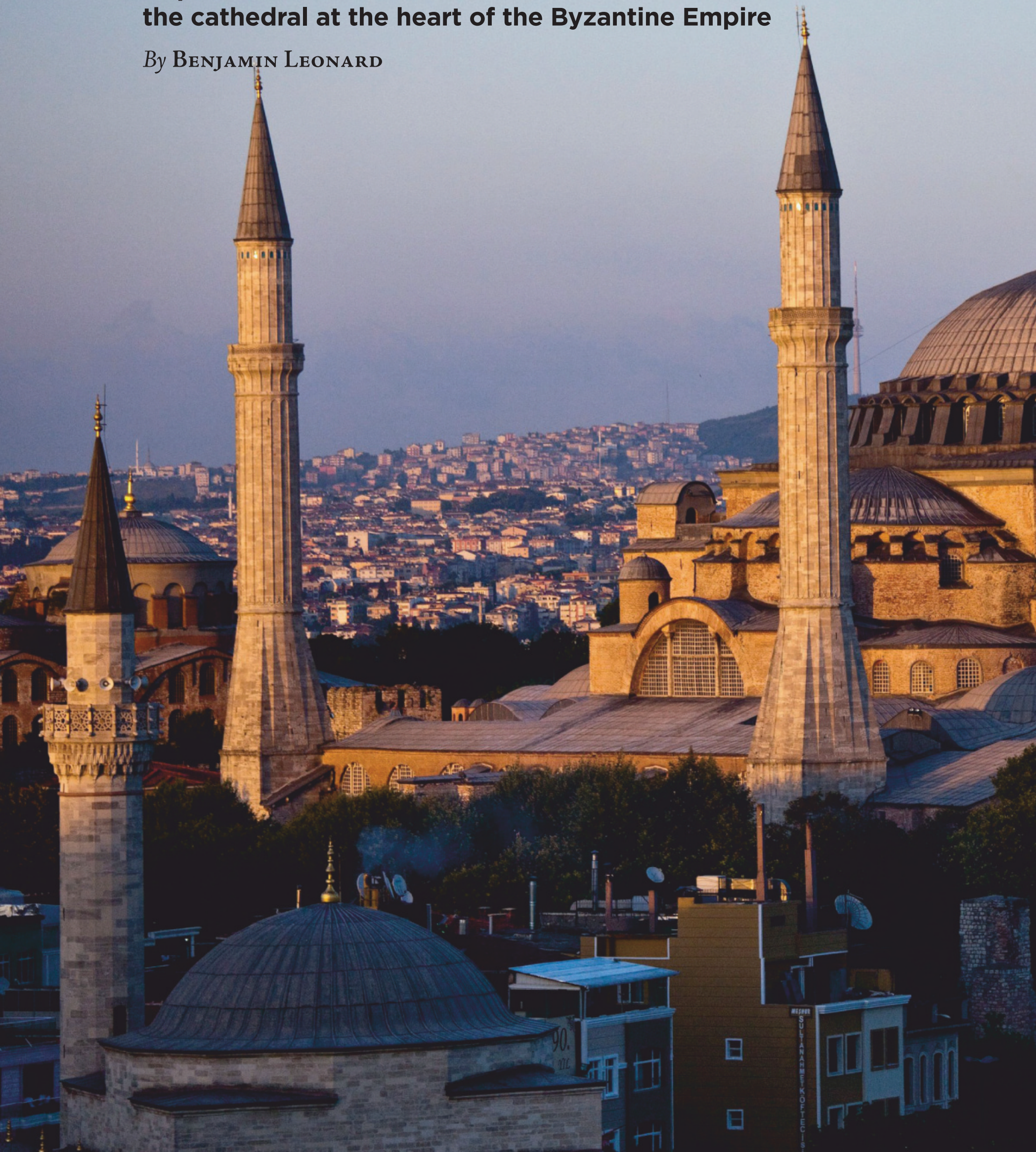
AUSTRALIA: Archaeologists excavating the Ladies' Cottage, a former women's mental health asylum in Tasmania, learned about one inmate's curious

behavior through a surprising discovery. More than 1,000 objects were found hidden beneath the veranda, including bundles of newspaper, food wrappers, articles of clothing, and other personal objects. Researchers believe an unidentified woman may have entered the crawl space through a trapdoor and discreetly stashed the items between the 1920s and 1940s as a way of creating her own private space apart from asylum life.

HAGIA SOPHIA'S

Unprecedented fieldwork in Istanbul has revealed new evidence of the cathedral at the heart of the Byzantine Empire

By BENJAMIN LEONARD



HIDDEN HISTORY



Dedicated in A.D. 537, Hagia Sophia was the cathedral of Constantinople for more than 900 years. When the Ottomans conquered the city in 1453, they converted the church to a mosque, adding the four minarets around it.

IN HIS ACCOUNT OF the extensive building program undertaken by the Byzantine emperor Justinian I, the sixth-century A.D. Greek historian Procopius describes the architectural splendor of Hagia Sophia, the towering cathedral of the capital city of Constantinople:

The church has become a spectacle of marvelous beauty, overwhelming to those who see it, but to those who know it by hearsay altogether incredible. For it soars to a height to match the sky, and as if surging up from amongst the other buildings, it stands on high and looks down upon the remainder of the city.

Completed in 537, Hagia Sophia (“Holy Wisdom”) is, in both style and scale, an architectural marvel. As a physical manifestation of the emperor’s personal authority, it also signified an increasingly close relationship between the state and the Byzantine Church that had begun two centuries earlier, during the reign of the emperor Constantine (r. 306–337). In 326, he had founded his eponymous city, Constantinople, and shifted his imperial operations there, a strategic move that enabled communication between the Roman Empire’s western and eastern parts. The latter encompassed the Balkan Peninsula, Anatolia, the Levant, northern Mesopotamia, and Egypt. By the fourth century, the city already had a bishop and attendant religious administration. “Constantine began a process, which quickened considerably with legislative changes in the late fourth and fifth centuries, that reduced the appeal of polytheistic pagan religions and moved Christianity from an outlawed sect to the official state religion by the early fifth century,” says art historian Joseph Alchermes of Connecticut College. Under Justinian I (r. 527–565), Constantinople’s bishop became one of four patriarchs who oversaw Christian worship throughout the Mediterranean world.

Hagia Sophia was built next to the imperial palace, making it not only the religious heart of the city but also the seat of secular governance. “Hagia Sophia was a center for imperial and patriarchal authority in a city and an empire in which the state and the Church were very closely intertwined,” says archaeologist Ken Dark of the University of Reading. “The emperor was integrated into the state religion, but, more than that, the Church pervaded every aspect of Byzantine life. Byzantine imperial and aristocratic architecture was used not only to symbolize status and power, but also more specifically to promote political programs about identity and the relationship between the state and the broader population.”

Although Hagia Sophia is no longer a church, but rather a museum, it is still the defining landmark of the modern city of Istanbul, and continues to captivate scholars and visitors in much the same way it awed Procopius nearly 1,500 years ago. Since the Renaissance, art and architectural historians have exhaustively studied the cathedral’s feats



A marble slab still attached to a pier of Hagia Sophia’s north middle buttress is a newly identified example of revetment that originally covered at least part of the church’s facade.

of engineering, lavish golden mosaics, and multicolored marbled interior. Relatively little scholarly attention, however, has been paid to the buildings that once surrounded it. “Hagia Sophia was part of a much larger ecclesiastical complex of which the church was the most important, but by no means the only building,” Dark says. “It was not even the only big building.”

The patriarch of Constantinople was the head of the ecclesiastical institution, called the Patriarchate, that was housed in this complex. At its center was a large structure called the Patriarchal Palace, which served as the administrative hub of the Church in the Byzantine Empire from its construction until the Ottomans captured Constantinople in 1453, sounding the death knell for the Eastern Roman Empire. The Ottomans razed much of the complex and converted Hagia Sophia to a mosque, adding the four minarets that still stand today. Periodic excavations throughout the twentieth century uncovered remnants of Byzantine structures surrounding the original church building, but didn’t lead to broader exploration.

In the late 1990s, Turkish authorities began restoration work in and around Hagia Sophia that included dismantling some Ottoman-era structures. This offered an unprecedented opportunity. At the Turks’ invitation, from 2004 to 2018, Dark and architectural historian Jan Kostenec of the Czech Center for Mediterranean Archaeology surveyed

Hagia Sophia and its environs. “It was almost universally assumed that we knew everything there was to know about the cathedral,” says Dark. “The moment we started identifying new material from the actual church, it became quite clear that there was a lot more to learn about the building and the people who built it, as well as about the surroundings where the



The cathedral's windows, including 40 of which encircle the base of the main dome alone, admit light that reflects off the golden mosaics, illuminating the space with an ethereal glow first described by 6th-century writers.



rest of the great ecclesiastical complex in the center of the Byzantine capital actually stood.”

The rapid pace of the restoration work meant that Dark and Kostenec were unable to excavate. “We had to view this as rescue archaeology, using survey techniques to record things as well as possible without excavating,” says Dark. They measured, photographed, and recorded Byzantine-era archaeological features, including ones that had never been documented. By examining brickwork and masonry, they established relationships between walls and floors of known date and the newly recognized features. In these ways, they dated many of the remains of the Patriarchal Palace and other structures outside the church, and, in some cases, tentatively matched rooms of the complex with spaces described in Byzantine-era sources. Inside the church building itself, the removal of plaster dating to the Ottoman period and later revealed previously unrecorded decoration and architectural elements stretching back to the Byzantine period.

BY THE SIXTH CENTURY, the ground on which Justinian built his Hagia Sophia already possessed a long history of religious import, having been the site of two earlier churches. Just north of the cathedral is a hypogeum, or underground tomb. Dark and Kostenec have dated the lowest course of brickwork and masonry in a wall above the hypogeum to the fourth century A.D. Because this area was incorporated into subsequent churches on the site, the researchers suggest that it was the burial place of an important religious figure, such as a saint or martyr, or perhaps of multiple such individuals. Dark and Kostenec

believe the wall above the hypogeum, and another fourth-century wall found in the 1930s in front of the main entrance to Hagia Sophia, could be a remnant of the *Megale Ekklesia* (“Great Church”), which was dedicated in 360. “If so,” says Dark, “this is the first time any part of the fourth-century church, the earliest predecessor of Justinian’s Hagia Sophia, has been found in archaeological work at the site.”

The *Megale Ekklesia* burned down in 404, and was immediately replaced with a more impressive basilica. Texts dating to the fifth century and later record that it had a series of galleries, likely for female worshippers, and a baptistery. Excavations in the 1930s also unearthed fragments of sculpture that once decorated the fifth-century church’s exterior, including a cross in a roundel and a frieze of lambs that scholars believe represent the 12 Apostles. At the time, archaeologists also uncovered a sloping area that Dark and Kostenec have interpreted as evidence of a monumental staircase that once led to a west-facing entrance to the basilica. An extant circular rotunda on the northeast corner of Hagia Sophia, called the *skeuophylakion* (“church treasury”), also dates to this period.

A little more than 100 years after it was built, the fifth-century church was also destroyed in flames. In January of 532, less than five years into Justinian’s reign, a nine-day uprising known as the Nika Revolt broke out in response to deteriorating relations between the emperor and an aristocratic faction that opposed him. Rioters set fire to the church, the palace, and many other monuments and imperial buildings in Constantinople, much of which was decimated by the conflagration. Rebuilding the city

center was a massive undertaking that Justinian began immediately, contemporaneous sources note. “After the riot and the destruction, the emperor felt a real need to act quickly and dramatically to show that he was in control,” says Alchermes.

To rebuild his city and restore his people’s confidence, Justinian enlisted two Byzantine architects, Isidore of Miletus and Anthemius of Tralles, who oversaw the design of the new Hagia Sophia. “Justinian gave them a brief that he wanted a building that could have no parallel, the likes of which the world had never seen,” says Alchermes. “They were theoreticians, not master builders trained in the trade of architecture or experienced in actual construction.” For their design of the cathedral, Isidore and Anthemius combined basic architectural elements that had been employed in earlier Christian basilicas, such



An inscribed invocation recently found on the southeast buttress pier is one of many examples of graffiti likely left by the church’s builders. It reads *K(YRI)E BOETHI TO SO DOULO* (“Lord help your servant”) and is followed by an illegible name.



A fresco of a cross (above) surrounded by a geometric design that resembles 6th-century art found elsewhere in the cathedral was revealed during restoration of an arch in one of the church's access ramps. Ceramic tiles incised with a wavelike motif (right) are elements of the original decoration of the rooms of the Patriarchal Palace, the administrative center of the Byzantine Church.

as a large open entrance, three aisles, and galleries above the side aisles in novel ways, to create a structure that was unique in its grand scale. The most audacious elements of their design were the vaults constructed throughout the building to create the central dome—which rises approximately 190 feet above the main aisle and spans 102 feet—and the semidomes that cascade from its sides. Construction of the spectacular cathedral was completed in just under six years, an impressive feat made possible only by the emperor's resources and influence. "Hagia Sophia was very much Justinian's church and a symbol of his imperial power," says art historian Nadine Schibille of the French National Center for Scientific Research. "The materials came from every corner of the empire. The marbles came from Egypt, Libya, France, and Greece, and the glass used for the interior decoration, which must have amounted to several tons, came from the Levantine coast."

Many of these materials were used to create the floors, columns, and mosaics that decorated every inch of the cathedral. In contrast to the figurative mosaics that now adorn the interior, the original mosaics did not feature images of the divine, but mostly depicted floral and geometric designs and simple Christian symbols such as the cross and dolphins. The building's design relied on the luminous effect of natural sunlight not only for functional reasons, but also to inspire awe in worshippers. "Light illuminates the interior space," Schibille explains, "and, by interacting with the decoration, creates an experience of wonder. The divine is wisdom, but at the same time is beyond human comprehension."

Some Christian symbols in the church's interior, however, were not intended to be visible to anyone at all. Dark and Kostenec discovered religious graffiti dating to the construction of the cathedral in places only the workmen building Hagia Sophia could have reached. Etched into the mortar between bricks are numerous mason's marks in the shape of an X, or the

Greek letter chi, which from the Roman period on was a common symbol for Christ. In addition, the archaeologists found many inscribed common Christian prayers and invocations to God, most frequently *Kyrie boethei* ("Lord help") followed by an individual's name. "You can see that the builders actually believed in what they were building," Dark says. "These people were near the bottom of Byzantine society

but shared in two of its most crucial central tenets: Greek literacy and Christianity."

MUCH OF HAGIA SOPHIA stands today as it was constructed in the sixth century, with the exception of the original dome, which collapsed in 558 after a series of earthquakes, and later restorations beginning in the ninth century, during which many the original mosaics were replaced. However, as a result of remodeling and rebuilding throughout the later Byzantine and especially the Ottoman periods, the little that is known about the ecclesiastical complex that surrounded the cathedral survives only in accounts written during Justinian's reign and in subsequent centuries. For example, several Byzantine writers describe exterior courtyards around the church that were paved in slabs of white marble from the island of Proconnesus in the Sea of



A blocked arcade (above left) that once flanked the east side of the Patriarchal Palace's large hall was recently identified in the walls of Hagia Sophia. The hall's antechamber (above right) remains intact.

Marmara. Paul, a sixth-century Greek poet who served as a silentary, or usher, under Justinian and his successor Justin II (r. 565–578), remarks that this marble paving bathed the church's exterior in reflected sunlight, producing an effect similar to that created by light pouring into the interior through the windows of the domes. Around the building's southwest buttress, Dark and Kostenec found white marble paving slabs incised with geometric decoration, the first archaeological evidence of the courtyards Paul and others saw. In the course of their survey, the researchers also recorded newly identified fragments of marble revetment on the building's exterior that suggest that at least part of the church was also once clad in marble.

The buildings arranged around Hagia Sophia's main church housed officials who fulfilled many of the Patriarchate's functions. "Hagia Sophia had hundreds of staff, many of whom were involved in administrative duties rather than, or in addition to, providing religious services," says Dark. Justinian established a framework under imperial supervision for the operations of the Church, which endured virtually unaltered for nearly 1,000 years, until the end of the Byzantine Empire. Among these officials were the grand oikonomos ("household manager"), who oversaw the Church's income and property, as well as notaries and the head of the patriarchal archives. There were also operations managed by patriarchal staff that were intended for the public good. "The Byzantine reconfiguration of the Roman Empire created a kind of welfare state with

charitable institutions set up, funded, and run by the Church," Dark explains. These included orphanages, free hospitals, and free hostels for women traveling on their own.

The Patriarchate's bureaucracy was centered in the Patriarchal Palace, a substantial structure of at least three stories in some places that was connected to the church on its southwest end. Constructed in the sixth century at the same time as Justinian's Hagia Sophia, the palace was modified and partially rebuilt under the patriarch Thomas in the early seventh century, and again later in the Byzantine period. Previously, this structure was known almost entirely from Byzantine written sources, which provide scant details about its plan and functions. Now, Dark and Kostenec have begun to reconstruct what the palace may have looked like by matching details from those Byzantine texts with surviving architectural evidence. These include sixth-century greenstone piers and bricked-up remains of entranceways and arches that are preserved in the standing walls of Hagia Sophia. In a vaulted room above the south end of the cathedral's atrium, the archaeologists recovered evidence of the Patriarchal Palace's opulent adornment, including Byzantine ceramic tiles decorated with an incised wave motif, bits of marble window grilles, and pieces of pilaster capitals carved with vine leaves and grapes.

At the heart of the palace was a vaulted hall measuring 66 feet long and 33 feet wide that was first discovered during restoration work in the early 1990s. "This large

hall is best interpreted as a meeting room or audience chamber,” Dark says. Remains of rooms adjoining the hall’s antechamber that likely functioned as offices, guest accommodations, kitchens, and storerooms have also been found. To the southeast of this cluster of rooms stands a domed octagonal structure, known to have been used as a baptistery but which, a ninth-century text notes, originally served as a Justinianic dining room. While reexamining the space, Dark and Kostenec noticed that its shape and interior niches were similar to elements commonly found in other secular reception spaces. In addition, the structure once had more doorways—which were blocked in the Ottoman period—suggesting it was initially connected to the Patriarchal Palace and may have served as one of its reception rooms.

Among the seventh-century additions to the Patriarchal Palace was a cross-vaulted substructure underneath the large hall, which is known from explorations in the 1960s. Its location in the palace, Dark and Kostenec theorize, corresponds with the ninth-century chronicler Theophanes’ description of the space to which the Patriarchal library was moved. Although it is still unclear what kinds of scholarly activities would have occurred at Hagia Sophia, “the room is similar in size to purpose-built Roman libraries elsewhere,” says Dark. “If there were Roman-style libraries across the empire, what was in them? They wouldn’t have contained only ecclesiastical works. Apart from administrative records and archives, there would also have been different kinds of secular texts.”

BOTH DARK AND KOSTENEC view their work as a starting point for new research that looks beyond the confines of the sacred space of Hagia Sophia and its surrounding



A round porphyry disc set into the floor of the cathedral’s northeast vestibule indicates one location where Byzantine emperors stood during imperial and religious ceremonies.



A digital reconstruction of the Patriarchal Palace has been produced using archaeological and textual evidence.

buildings to the broader landscape of Byzantine Constantinople and the Eastern Roman Empire. “Of all the historic-period European empires, there is none that is so little understood archaeologically as the Byzantine Empire,” says Dark. “There’s been so little archaeological work done that even some of the most basic questions still need to be answered.”

Byzantine accounts relate that the cathedral of Hagia Sophia was adorned with fine silk furnishings embroidered in gold, silver, and other rich colors, all gifts from Justinian to his church and his people. They also describe altar cloths, including one that depicted Justinian and his wife, Theodora, making offerings to Christ, and another showing the churches and hospitals they had built. Although these opulent embroideries no longer survive, traces of the presence of Justinian and subsequent Byzantine emperors can be seen inside Hagia Sophia even today. At each of the cathedral’s four corners are vestibules, which Dark and Kostenec determined were part of the sixth-century church. In the northeast vestibule, they recorded a circular disc of porphyry, a type of purple stone reserved for royalty, set into the marble floor. They also identified a circular indentation, clearly aligned with a now-blocked sixth-century door, where another disc would have been located in Justinian’s time. On this spot, the emperor would have stood in his cathedral, the embodiment of his spiritual and worldly empire. ■

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Idol of the Painted Temple

On Peru's central coast, an ornately carved totem was venerated across centuries of upheaval and conquest

By MARLEY BROWN



Remains of the Painted Temple (center), first built at the site of Pachacamac in southern Peru in the 8th and 9th centuries A.D., are visible behind a heavily looted ancient cemetery. The 15th-century Inca Temple of the Sun can be seen in the background. The Pachacamac Idol (right) was discovered in the rubble of the Painted Temple and may represent its principal deity.

AFTER DEFEATING THE FORCES of Atahualpa, the last Inca emperor, in 1533, Francisco Pizarro dispatched his brother Hernando to a vast religious center on Peru's central coast called Pachacamac. Just south of modern-day Lima, Pachacamac spanned nearly 1,500 acres and had, by that time, been a place of worship for at least 1,000 years. There, in front of an assembled crowd of locals and

priests, Hernando Pizarro is said to have smashed an idol representing one of Pachacamac's primary deities. The Spanish had introduced a sweeping proscription against indigenous religious practice and forced the local population to convert to Christianity. Pachacamac was soon abandoned, ending a centuries-long tradition of venerating cults at the site under the rule of elites of multiple Andean cultures.

These various cultures, evidence suggests, shared spiritual ideas and perhaps even gods. Pachacamac is, in fact, an Inca name for an oracle that may have been worshipped in some form for hundreds of years before the Inca Empire conquered the area in the late fifteenth century.

Just over 400 years after Pizarro's raid on Pachacamac, in 1938, avocational archaeologist Albert Giesecke discovered a wooden sculpture roughly eight feet tall and five inches in diameter hidden among rubble from what was once the north atrium of Pachacamac's Painted Temple. The pyramidal Painted Temple is believed to have first been built in the eighth and ninth centuries A.D. and then to have been expanded during the Andean Late Intermediate period (ca. A.D. 1000–1470), when Pachacamac was home to a chieftainship and a deity both known as Ychsma. An American polymath trained in economics who first traveled to Peru in 1909 as an adviser to the Peruvian government, Giesecke became an influential public servant and a champion of the country's pre-Columbian heritage. With information that had been provided to him by farmers in the area, Giesecke tipped off explorer Hiram Bingham to the location of ruins high above a gorge in the southern highlands—a site now known as Machu Picchu.

Since its discovery, the sculpture from the Painted Temple has been called the Pachacamac Idol and has been the subject of intense interest—and controversy—among scholars of the Andean world. Many have speculated as to whether this idol could be the very artifact Hernando Pizarro is said to have destroyed.

A team led by archaeologist Marcela Sepúlveda of the Pontificia Universidad Católica de Chile and the Sorbonne University has now radiocarbon dated the idol. The results suggest it was fashioned sometime between A.D. 760 and 876, around the time the Painted Temple was first constructed. During this period, the central Peruvian coast was under either the direct political control or significant cultural influence of the Wari Empire, whose capital near Ayacucho lay some 200 miles southeast of Pachacamac. According to archaeologist William Isbell of Binghamton University, researchers are divided



over how much Wari transformed the region, and Pachacamac in particular. “One scenario would have Wari coming in and, if not founding the major temple at the site, reestablishing it under an imported deity and reorganizing the central coast, probably under theocratic leadership,” he says. “But certainly, the Wari Empire was a pretty aggressive organization and would have been backed up by military power as well.” Other scholars argue that the transformation that eventually led to the construction of Pachacamac’s temples and its rise as a religious center had taken place centuries before, in the Early Intermediate period (ca. 200 B.C.–A.D. 650), and that the site was already at that point home to a state-level society with a stratified class system, including military and priestly castes, and had a well-developed material culture of its own. This society, in turn, may have adopted cultural practices from, traded with, or become a client state of Wari. While direct evidence of Wari political or military control at Pachacamac is lacking, numerous Wari-influenced burials, ceramics, murals, and textiles have been discovered at the site, particularly in and around the vicinity of the Painted Temple.

Now that it has been dated, the idol may feature prominently in the debate. Its carved decoration has long provided researchers with an opportunity to examine the extent to which it reflects a mix of Wari themes and those already present in the Pachacamac area before Wari’s arrival. At its top, the sculpture bears a carving of two anthropomorphic figures standing back to back, or perhaps one figure with two faces looking out in opposite directions, Janus-like. The middle of the statue is crammed with depictions of animals, particularly felines, fish, and snakes. “The human representations that adorn the idol, as well as the animal and other iconographic motifs that cover its middle portion, refer to symbols that we can call pan-Andean,” Sepúlveda says. “It’s difficult to know if their meanings were the same in various places, or if they varied across time.” Even visually comparable representations, she explains, could have held different meanings depending on context. For instance, similar themes on the idol and on murals identified in the Painted Temple may have had different connotations. “We now know

Carved anthropomorphic figures (top) in the upper portion of the Pachacamac Idol may depict a deity or an oracle venerated in Pachacamac for more than 700 years. The idol’s center section features depictions of both human forms (middle) and felines (bottom), along with other animals.



the idol was made several centuries before the last repainting of the temple,” says Sepúlveda. “It is not clear which meanings of these motifs were preserved in time.”

While scholars cannot say for certain what the Pachacamac Idol was called by those who venerated it, it does not appear to depict one of the primary Wari deities. Wari are thought to have worshipped a trio of gods headed by the Staff God, a humanlike figure typically portrayed holding a staff in each hand, with solar rays radiating from around his face. In many instances, he is shown accompanied by two attendants who also hold staffs. Isbell says that if the Pachacamac Idol does represent a Wari deity, it does so in a unique manner. “If it were dead-on Wari style, it would show a recognizable figure from that pantheon—and it doesn’t,” he says. “On the other hand, certain decorative elements it does have, such as pendent rays and feline heads, are very reminiscent of the rays that come off the face of the Staff God.”

Archaeologist Peter Eeckhout of the Université libre de Bruxelles suggests that the idol’s iconography is not purely Wari, but rather a mix of local central coast and Wari styles. “It’s a kind of syncretism,” he says. He explains that the idol shares characteristics with depictions of gods at other coastal sites from the same period, such as a human figure generally shown either as just a head or in full body, often featuring a snakelike headdress or braids. This figure is often surrounded by felines, snakes, and fish, motifs also found on the idol. Colonial accounts written many centuries later suggest that the god of the Painted Temple was variously believed to have been the creator of the world, an oracle, or a deity associated with fertility.

The pervasiveness and continuity of certain religious themes throughout the Andean world may have been a factor in the endurance of the Pachacamac Idol as an object of veneration for at least as long as six centuries (A.D. 876–1533), during which time Pachacamac itself underwent political change and experienced periods of temporary abandonment. Isbell says, “I think the radiocarbon date clearly shows that whether the idol represents the principal image of Pachacamac or not, it was there for a long, long time and participated in a tremendous number of changes that must have occurred on the central coast over those centuries, spanning the Wari Empire, through the Ychsma period, then into the Inca Empire, and through the Inca right to



the beginning of the Spanish colonial period.”

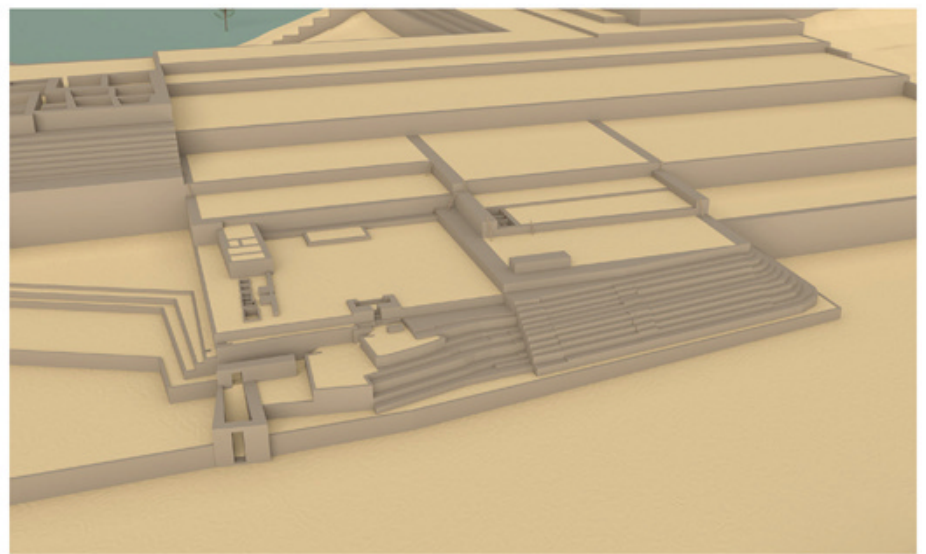
Evidence of the spread of religious ideas throughout the Andes can also be found in the use of color across the region, which in turn reflects trade in minerals used for pigment. Such trade networks crossed hundreds, if not thousands, of miles. Using portable X-ray fluorescence spectrometry, Sepúlveda and her collaborators have revealed that the idol, which now appears unpainted to the naked eye, was once vibrant with yellow, white, and red pigment. X-ray fluorescence detects the concentration of certain elements in or on the surface of an object, in this case the minerals that make up traces of pigment still present on the idol.

Relatively little is known about the ways in which pre-Columbian indigenous people in the Andes thought about color, or how color was employed symbolically. “The main evidence related to the use of color is linked to the work done around metallurgy—its brightness and the intentional search for certain colors through producing particular alloys—or in the creation of dyes for fabric and textiles,” Sepúlveda says. For example, vermillion, a pigment obtained from cinnabar, was used to dye textiles in the Andes for thousands of years, and later for painting murals and wooden objects such as the idol. When the Spanish arrived, Sepúlveda says, they recorded how indigenous people prepared certain colors and dyes. For now, researchers can only hypothesize about what the yellow, white, and red on the Pachacamac Idol might have signified.

A ceramic fragment discovered at the Wari site of Conchopata, on the edge of modern-day Ayacucho, depicts the Staff God, the primary deity of the Wari Empire, between two attendants.



The idol may have taken on a meaning recognizable to multiple Andean cultures during the Middle Horizon period (ca. A.D. 650–1000) through its style, color, and decoration, or through a shared understanding of spiritual or religious symbols. It probably endured as an object of worship because new rulers who took control at Pachacamac, such as the Inca, tended to tolerate existing cults. “The Inca were interested in integrating local and regional cults into their own pantheon and sacred net,” says Eeckhout. “It was part of their conquest strategy, but also their belief in the reality of the powers of



A digital rendering of the Painted Temple at Pachacamac, which is thought to have been a place of worship between the 8th and 16th centuries A.D.

those entities.” Centuries before, Wari also appear not only to have allowed the people at Pachacamac to continue to worship their local deities, but those gods—including the deity represented on the Pachacamac Idol—may even have been incorporated as lesser members of the Wari pantheon.

Isbell cautions against assuming a straight line of religious continuity at Pachacamac. “There is a tremendous tendency among Andean scholars to imagine some sort of essentialist Andean nature or culture,” he says, “but change has characterized the Andean world throughout its existence.” Spanish proselytizers learned, to their dismay, that even indigenous converts to Christianity viewed that novel dogma through the prism of their own religious traditions, creating a cosmology and a worldview distinct from that of their oppressors. In

the decades after the Spanish conquest, mestizo children born to conquistadores and elite Inca women were often trained as priests. When Spanish authorities realized that this new generation of clerics was translating Christian concepts into an Inca language and embedding them within an Inca spiritual framework, however, they forced the mestizo priests out. Perhaps, as they had for hundreds and hundreds of years, the residents of Pachacamac had once again taken in foreign idols and made them their own. ■

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A SILK ROAD RENAISSANCE

Excavations in Tajikistan have unveiled a city of merchant princes that flourished from the fifth to the eighth century A.D.

By ERIC A. POWELL

THE SILK ROAD, the vast network of trade routes that connected China to the rest of Eurasia from roughly the first century B.C. to A.D. 1400, was justly famous in the West for the rich silk textiles it carried to the Mediterranean world. “But it could just as easily have been called the Jade Road, the Glass Road, or even the Rhubarb Road,” says art historian Judith Lerner of the Institute for the Study of the Ancient World at New York University. Such was the variety of commodities—raw silk, glass, spices, finished metalwork, ceramics, and much more—that any one of dozens of goods could have given the route its name. The Sacred Road, too, might once have been a fitting appellation. Christian and Buddhist missionaries, among others, used Silk Road caravans to cross the Asian continent. And from the fifth to the eighth century A.D., the overland trade routes that crossed through Central Asia might also have been called the Sogdian Road. An East Iranian people who lived in what is now Uzbekistan and Tajikistan, the Sogdians were, for a time, the leading merchants of the Silk Road. “The Sogdians achieved great influence via trade,” says Lerner. “The Chinese even had a saying: ‘When a Sogdian child is born, his mother puts honey on his tongue so that he will speak sweetly and glue on his palm so that money will stick to it.’”

The Sogdians were more than quick-witted intermediaries. At their height, their sophisticated culture, skilled diplomacy, and mercantile power helped shape the greater world around them. “You could describe the Sogdians as the first internation-



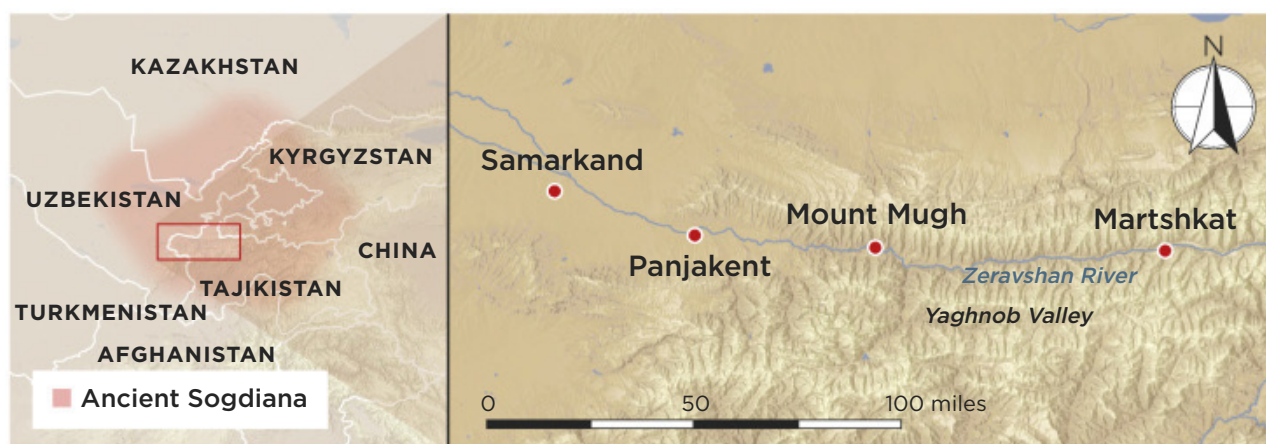
An 8th-century A.D. mural (right) unearthed at the city of Panjakent in modern-day Tajikistan depicts scenes from the *Mahabharata*, an ancient Indian epic. In the main scene, the legendary Indian king Virata plays backgammon against a priest. Another Panjakent mural (top) shows inhabitants of the city, an Iranian people known as the Sogdians, enjoying a banquet.



alists or globalists,” says Lerner. Sogdian diplomats, translators, artists, craftspeople, and entertainers traveled in the caravans that ventured along the Silk Road and settled in merchant colonies along the route in Central Asia and China. Sogdian was the lingua franca of the Silk Road, and, for a time, a vogue for all things Sogdian swept Tang Dynasty (A.D. 618–906) China. Chinese courtiers and concubines adopted Sogdian fashions, and the many Tang Dynasty depictions of Sogdian musicians suggest their performances were in high demand. For a time, a craze for an ecstatic dance known as the “Sogdian Whirl” swept the country, and Sogdian dancers became a popular motif in Chinese art that lasted long after Sogdians themselves had been assimilated. Indeed, in the mid-eighth century, a half-Sogdian general named An Lushan, who was reputed to weigh 400 pounds, was known for delighting the Chinese imperial court with his version of the Sogdian Whirl. In turn, the people of Sogdiana were highly receptive to outside ideas, religions, and artistic styles from China, India, and even the Byzantine Empire.

At home in Central Asia, the Sogdians lived in a number of independent city-states clustered around the Zeravshan Valley and the oases of modern-day Uzbekistan. “These states can be compared to the Italian city-states of the Renaissance, each with its own ruling family, laws, and government,” says Lerner. “In fact, the analogy can be taken further when we think of these cities’ rulers as ‘merchant princes’ since that is how the Sogdians derived their wealth.” Samarkand was one of the largest and most prosperous of these cities. Some 60 miles to the east, the much smaller city of Panjakent was a satellite of sorts to Samarkand, but supported its own vibrant economy.

Today, the mudbrick ruins of Panjakent’s citadel, palaces, and temples survive behind formidable city walls that rise about three miles from the banks of the Zeravshan River in



the present-day Sughd—itsself the Sogdian word for Sogdiana—province of northern Tajikistan. For more than 70 years, excavations carried out there almost continuously by Soviet and then Russian and Tajik archaeologists have revealed the rich texture of Sogdian city life. Though several Sogdian cities have been excavated, much of what scholars know about Sogdiana is based on documents and artifacts recovered from towns along the Silk Road and in China. The excavations in Panjakent, now under the supervision of archaeologist and philologist Pavel Lurje of the State Hermitage Museum in St. Petersburg, offer a vivid glimpse of what the Sogdians were like in their homeland. In particular, dramatic murals depicting myths, fables, and everyday scenes characterize the world of the Sogdian imagination. “We find murals in almost every field season,” says Lurje. “It’s one of the reasons archaeologists have worked at the site for so many years.” Aleksandr Naymark, an archaeologist at Hofstra University who excavated at the site in the 1980s, says that the analogy of Sogdian merchants to Renaissance Italians is especially fitting given the dizzying array of murals that have been unearthed at Panjakent. “In northern Italy during the Renaissance you had this merchant class whose extreme wealth led to an exceptionally creative period, especially in narrative art,” says Naymark. “The Sogdian merchants enabled the same kind of burst of creativity, which you see in these murals.”

Panjakent and at a second, much more remote site known as Hisorak, offer a unique vantage point on Sogdian culture, both in its heyday and when it was close to vanishing.

IN 1933, A TAJIK HERDER walking down the slopes of Mount Mugh, some 40 miles east of Panjakent, found a mysterious clutch of papers in the ruins of a small mudbrick castle perched on the mountainside. Thinking the pages might be the remains of an old Koran, he took them to his village imam, who recognized that the text was not written in Arabic. In time, a Soviet district commissioner caught wind of the discovery, and archaeologists at the Academy of Sciences in what was then Leningrad were alerted. During their subsequent excavation of the small fortress, they discovered more than 80 Sogdian documents, which represented the royal archive of Devastich, the last Sogdian ruler of Panjakent.

By this time, Sogdian writing had been deciphered thanks to the discovery of similar caches along the Silk Road. Those papers record religious teachings, administrative and mercantile housekeeping details, and even private matters. One such cache, a group of letters discovered in 1909 at an ancient watchtower in China’s Gansu Province, includes correspondence from a Sogdian wife to her husband castigating him for abandoning her in China and detailing her cruel circumstances. The letter was never delivered. In another, a Sogdian merchant writing to his home office



The ruins of Panjakent have been continuously excavated since the 1940s. Some 3,000 coins have been unearthed in the city, including many bearing the names of its rulers.



in Samarkand describes bloody incursions by nomads from the north. Believing that he wouldn't survive the chaotic situation, he instructed his business partner to use money he had left in Samarkand to provide for his adopted son.

Devastich's archive contains no such private letters, but it does contain voluminous correspondence with other Sogdian rulers and officials and with the Arab emirs then already ascendant in Samarkand and much of Sogdiana. The cache was secreted away in the castle on Mount Mugh when Devastich fled there, fearing capture by Arab forces. It didn't prove to be an impregnable hideout. In 722, after an Arab army occupied Panjakent and burned many of its homes and temples, Devastich was captured and crucified.

The discovery of such a spectacular collection of documents in Sogdiana, still the only such archive to have been found in the Sogdian homeland, prompted the Soviet archaeologists to turn their attention to Panjakent proper, where they began excavating in 1947. They discovered that a citadel had existed at the site from perhaps the second century B.C., but that the city itself dated to around the beginning of the fifth century A.D. when the residents of Panjakent erected a massive 30-foot wall, perhaps to protect it from nomadic incursions. Thereafter the city grew rapidly around carefully planned streets and lanes and became a densely occupied urban landscape, with two- and three-story buildings becoming the rule. "It's a real mudbrick jungle," says Lurje. "You have homes connected to shops that have separate entrances, but everything was quite close and people were living on top of one another."

SINCE EXCAVATIONS BEGAN at Panjakent, archaeological teams have unearthed two temples. One may have been devoted to Adhvagh, the principal god worshipped by most Sogdians, who practiced the Mazdean faith, a form of Zoroastrianism. The second temple was the domain of Nana, the patron goddess of Panjakent. She is shown on murals riding a lion, holding the sun in one hand and the moon in the other. An unbaked clay depiction of the goddess was found in her temple, which also contained shrines to local Iranian gods, as well as to Shiva, the Hindu god whose worship was common in Sogdiana. "The Indian influence on Sogdian art was profound," says Lurje. "You can see it in the way the Sogdian gods are depicted, with four arms and often riding animals, which are artistic traits from Hindu tradition." It is likely that a small minority of Buddhists and Christians also lived in the city. In 2016 Lurje found a small wooden carving of Buddha, and in 2019, his team discovered a piece



A carved wood depiction of Buddha (above) was recently found at Panjakent, which likely had a Buddhist minority. An unbaked clay relief (left) shows Nana, Panjakent's patron goddess, riding a lion.



of pottery bearing writing in Syriac Christian script, which suggests there was a Christian school in the city at some point. "The Sogdians enjoyed a relative degree of religious freedom," says Naymark.

"Christians, Hindus, and Buddhists

all lived side by side with Zoroastrians. In this way, Sogdian society really resembled a modern society."

Both Mazdean temples contained remains of religious murals, and the walls of one of the royal palaces were decorated with paintings depicting tulips and poppies, as well as one example showing a hunt. Another palace, erected by Devastich, contained scenes depicting political events. However, the most vivid and best-preserved murals at Panjakent are not in the palaces and temples, but in the homes of wealthy and middle-class residents. An estimated one-third of all houses excavated at Panjakent contain evidence of murals, from shattered fragments to massive, nearly complete works that tell multiple stories. "Because so much of the painting at Panjakent is narrative, it must tell whatever story is being depicted in a realistic, detailed manner," says Lerner. "The elegance of the style in which these narratives are rendered—both epic and anecdotal—is characteristically Sogdian."

Sometimes the murals seem to reflect the personalities or occupations of those who commissioned them. In one house, where archaeologists found a number of bone gambling pieces,

they also unearthed a mural depicting a scene from the Indian epic the *Mahabharata*, which shows the legendary king Virata playing backgammon, a game often associated with gambling. Another house, whose collection of unusually large granaries suggests its owner was a grain merchant, contained a mural depicting a harvest ceremony. Perhaps the most spectacular mural was excavated at a midsize house in the southeastern section of the city. There, archaeologists discovered what they dubbed the Blue Hall, a banquet space with built-in benches along the walls. The surfaces of these walls were covered with intricate, 15-foot-high murals divided into horizontal sections. A top section depicts a religious ceremony, perhaps a family ritual. The middle and largest section shows scenes from the national epic of Iranian peoples, the *Shahnameh*, or “Book of Kings,” which was first written down around the year 1000, almost 300 years after the mural was painted. The mural depicts the feats of the hero Rustam as he leads an army to battle demons. Below the stories of Rustam is a smaller set of murals that illustrate a series of animal fables, which were popular in Panjakent. A mural discovered in another house even depicts the tale of the “Goose

was taken by Arab forces, who maintained a garrison there after dethroning Devastich. That Panjakenters felt comfortable enough at this time to commission large murals for their homes celebrating Sogdian religious rites and illustrating an epic central to their national identity suggests Arab rule was, at least initially, not particularly strict. It is unclear whether the Mazdean temples were used after the Arab invasion. The discovery in 2018 of a third building that may also have been a temple could give Lurje and his team a chance to investigate whether Sogdian religious ceremonies continued.

There are, however, signs that many houses in the city were renovated after the 722 Arab takeover, and the presence of murals dating to after this point suggests there was some kind of renaissance in Sogdian culture. It’s possible that wealthy Sogdians from larger cities such as Samarkand came to Panjakent and commissioned these paintings. But the city’s recovery was short-lived. “There is evidence that some murals were intentionally defaced, perhaps for religious reasons,” says Lurje. By 770, it seems much of central Panjakent was abandoned. It is possible that most of the descendants of the Sogdians who had lived in



Two panels of a mural in Panjakent’s Blue Hall depict the legendary Iranian hero Rustam (left) on horseback leading his army into a battle against demons (right). The scenes come from the epic *Shahnameh*, or “Book of Kings,” a mythological history of Iranian peoples.

Who Laid the Golden Egg,” famous in the West from Aesop’s Fables. What remains of the Sogdians’ written culture is mostly religious and administrative in nature. But they surely had a rich literature as well, which may be partly reflected in these murals. “We know they had books,” says Lerner. “There’s a mid-eighth-century painting from Panjakent of a large illustrated codex. It’s possible that the tales and fables we see painted in the lower registers of the banquet rooms in Panjakent’s houses were also written and illustrated in bound or folded books.” Some of the scenes may reflect oral traditions, perhaps ones that Sogdians could tell while feasting and looking at the murals. Other stories may have reached Panjakent on painted scrolls.

The Blue Hall and some of the other rooms that contain brilliant murals date to the 740s, almost 20 years after the city

Panjakent moved a mile south to a site where the modern city of Panjakent now stands. By that time, almost all Sogdians had converted to Islam, and Sogdian culture was disappearing.

WHILE EXCAVATING AT PANJAKENT, Lurje and his team have also worked more than 100 miles upriver, at the site of Hisorak, which he has identified as Martshkat, a small Sogdian city mentioned at least seven times in the Mount Mugh archive. Since 2010, he has led excavations at Martshkat, which consisted of a settlement perched above a river gorge and attached to three mudbrick citadels. While some of the city’s buildings were decorated with murals, only fragmentary traces remain. Instead, the unusual chemistry of the soil has preserved other types of artifacts, especially goat



The site of Hisorak (above), more than 100 miles east of Panjakent, has been identified as the remote Sogdian city of Martshkat. There, archaeologists have unearthed rare examples of Sogdian writing (right) preserved on wood and leather hides, one of Martshkat's best-known products.

and sheep skins. According to the Mount Mugh documents, the city was well known for producing leather from such hides. One document even mentions the name of the attendant, Wakhshmareg, who was responsible for the large basin used to tan the skins. Lurje believes he has identified this very basin in a large courtyard in the settlement. He has also unearthed several fragments of Sogdian writing preserved on sticks of wood.

People were living at Martshkat as early as the first century A.D., but it appears the settlement expanded around the beginning of the eighth century, when the Arabs began to take power in Central Asia. Indeed, one of the Mount Mugh documents that mentions the city comes from an unnamed ruler asking for aid in recapturing workers who had absconded while building an important structure in the town. Lurje speculates that these men were working on one of the citadels, possibly in anticipation of a siege by Arab forces.

That siege appears never to have taken place, and people continued to live in Martshkat in reduced numbers until perhaps the tenth century, but it's difficult to say exactly for how long. While some 3,000 coins have been unearthed at Panjakent, only three have been found at Martshkat, a sign perhaps that this city was at a remove from the bustling Silk Road economies that characterized Sogdian settlements in the Zeravshan Valley and the oases beyond.

By the time Martshkat was abandoned, it was likely one of the last outposts of Sogdian culture. Though the Sogdians were largely forgotten until recently, some of their words have made their way into modern languages. Such was the influence of Sogdian on the world of medieval commerce that the English word "check," as in a bill, comes from the Sogdian term for invoice.



the fairy tales the Yaghnobi tell are the same as those told by neighboring Tajik peoples, but he did notice one particular feature of their language. Yaghnobi speakers, he says, are fond of inventing humorous slang and playing word games with each other to a degree Lurje has never encountered among other speakers of Iranian languages. It's tempting to imagine their ancestors relishing the same sort of wordplay as they sat and conversed in their muraled halls, or as they whiled away the hours as their caravans wended along the Sogdian Road. ■

Eric A. Powell is deputy editor at ARCHAEOLOGY. To see more images, go to archaeology.org/sogdians.

HOW PEOPLE DRESS and adorn themselves has long been a primary way of showcasing their identity and communicating it to others. The ancient Maya, whose world was one of vivid cultural practices and strict hierarchy, with rulers playing an essential role mediating between the gods and mere mortals, developed a deep interest in status and display. One of the ways this manifested itself was in their rich array of clothing and personal ornamentation. “For the Classic Maya, in many ways, clothing defined personhood,” says Alyce de Carteret, a fellow in Art of the Ancient Americas at the Los Angeles County Museum of Art. “Numerous aspects of an individual’s identity—from their political position, to their trade, to their gender—were

communicated through adornment, and depictions of clothed bodies encode this vital information. To study ancient Maya dress, then, is to study ancient Maya society itself.”

By the second millennium B.C., the Maya occupied much of southern and eastern Mesoamerica, including all of the Yucatan Peninsula, Belize, and Guatemala, as well as western Honduras and El Salvador and parts of the Mexican states of Tabasco and Chiapas. Their world was not a unified empire, but rather a collection of kingdoms based in cities such as Copan, Palenque, and Chichen Itza. At various times, new power centers emerged, and their leaders pursued ambitious architectural projects whose remains still impress today, while older centers declined. Much of the scholarship on ancient Maya clothing and adornment focuses on the Classic period



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From Head to Toe in the Ancient Maya World

Clothing, jewelry, and body modification spoke volumes about people's social status and the varied roles they played

by LYDIA PYNE



A Late Classic (A.D. 600–900) Maya vase from the Peten region of Guatemala portrays a king and queen (center) preparing to perform a ceremonial dance. Both royal figures wear feather headdresses. The king's headgear features a headband with a jade diadem that was a symbol of royal authority. The king has swirls of red paint on his upper body, and the queen has red lines painted below her eyes. A kneeling male attendant applies red paint to the king's backside, while a standing male attendant holds a mirror for him. A female attendant (far left) holds a mask that the king will wear during the dance. All three attendants have a brown tone covering their bodies and light patches around their mouths.

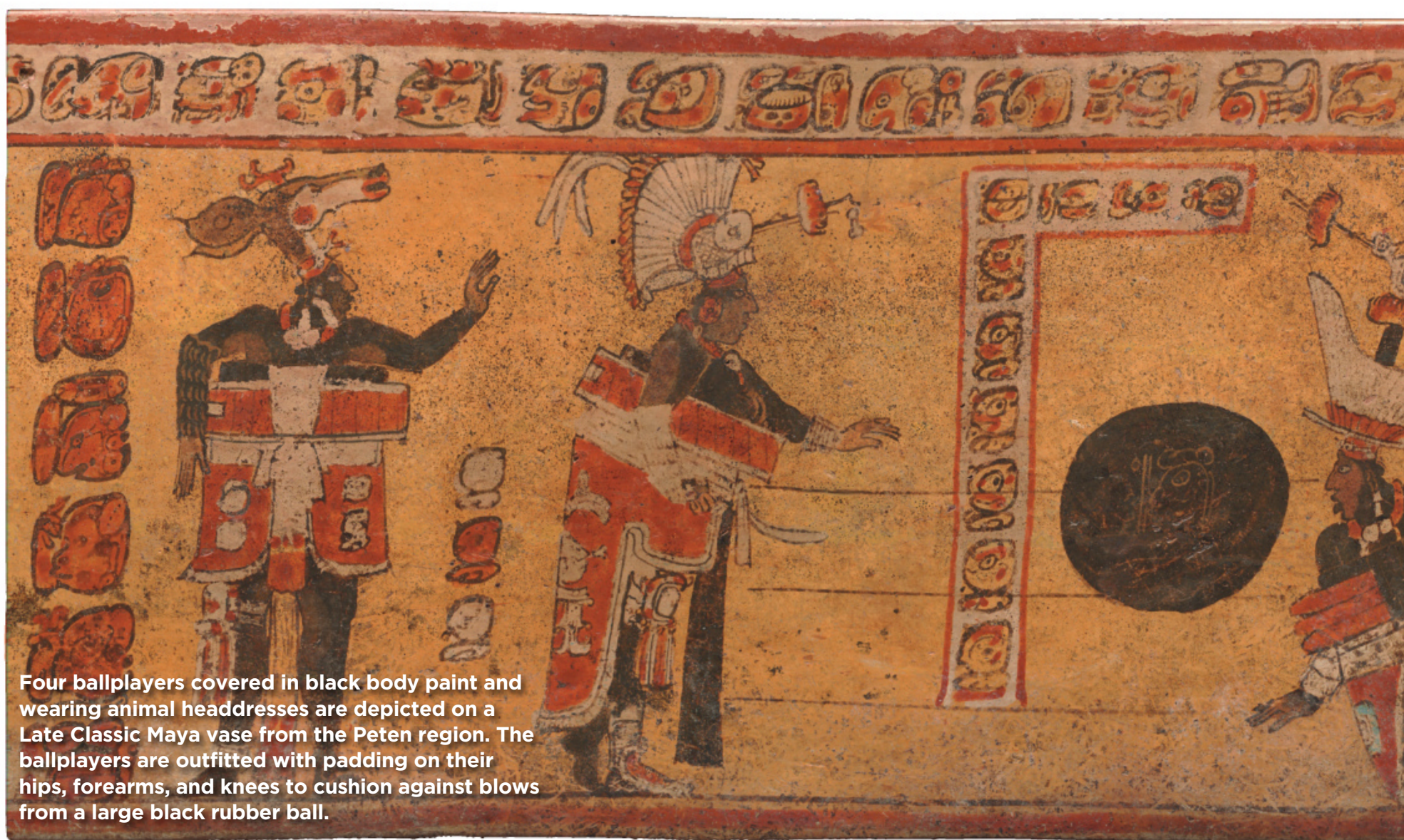
(A.D. 250–900), when the Maya population grew dramatically, and royal courts, with their flamboyant ritual displays, became more prominent. While few items of clothing and ornamentation have been preserved in the archaeological record, scholars use depictions on painted murals, ceramic vessels, stone stelas, and clay figurines dating to this period to learn what the ancient Maya wore.

Many of these images show the Maya engaging in or preparing for religious ceremonies, which were scheduled based on an extremely complex calendar system and called for specialized clothing and accessories, from elaborate headdresses to ornate sandals, and even patterns painted directly on the skin. Other images portray warriors or ballplayers, who often integrated animals into their outfits. Still others depict resplendently costumed rulers towering over naked captives.



Maya adornment incorporated a broad range of materials, from the luxurious blue-green feathers of the quetzal bird to the spotted skin of the jaguar, which was sometimes worn as a cape with head and paws still attached. Even a seemingly mundane substance such as paper made from bark, when crafted into a simple headband, played a key role in one of the most important Maya rituals of all. And when fashioned into earrings, this paper helped facilitate the Maya ceremonial practice of self-sacrifice. “All these examples point to something deeper and more complex than the material culture of clothing alone can convey,” says Astrid Runggaldier, an archaeologist and assistant director of the Mesoamerican Center at the University of Texas at Austin. “They hint at the role of attire as accoutrement to the social roles embodied by human beings.”

HEADADDRESSES



Four ballplayers covered in black body paint and wearing animal headdresses are depicted on a Late Classic Maya vase from the Peten region. The ballplayers are outfitted with padding on their hips, forearms, and knees to cushion against blows from a large black rubber ball.

In Classic Maya society, the head was the center of a person’s identity and the animating force that defined them. Thus, there is great variety in Classic Maya headdresses, as different roles, occupations, and ceremonies required distinct sets of headgear.

Ballplayers and warriors, for example, are both depicted wearing elaborate animal headdresses. It is possible the Maya thought that adorning oneself with a particular animal head allowed the wearer to take on some of that animal’s characteristics.

NASAL PROSTHESES

In the northwestern part of the Maya world, around Palenque, in Chiapas, and along the Gulf Coast of the northern Yucatan Peninsula, both men and women wore nasal prostheses to alter the shape of their facial profiles. These prostheses were most likely made from latex or resin and appear to have been stuck onto the skin. They would have exaggerated the bridge of the nose, extending it well up onto the wearer's forehead. "Carved panels show elite men in profile, and the artists are careful to distinguish the prosthesis from the real nose," says Harvard University archaeologist Nicholas Carter. He adds that it is unclear what the prostheses signified, though there may have been an ethnic dimension to the adornments, as the people who lived in the area where they were worn spoke languages that were distinct from those spoken in the Peten heartland.



A ruler wearing a nasal prosthesis looms over a captive in a Late Classic panel from a temple at Palenque in Chiapas. The captive wears paper earrings, which were rough and uncomfortable by design.



The animal someone wore may also have correlated with their rank. A Late Classic (A.D. 600–900) vase from the Peten region of Guatemala shows a ball game believed to have been contested between representatives of the cities El Pajal and

Motul de San Jose. The kings' plumed headdresses are topped with hummingbirds, while their auxiliaries wear a comically depicted deer and vulture, respectively. In a Late Classic mural at Bonampak in Chiapas that illustrates the aftermath of a great battle, the most important participants wear jaguar headdresses.

Maya kings and queens are typically shown wearing flamboyant headdresses bedecked with masks, quetzal feathers, and jewels as they conjure their ancestors or perform other important rites. However, the most significant element in a ruler's headdress was among its simplest. "A bark-paper headband adorned with a diadem of jade or shell was bound to the heads of rulers the day they acceded to the throne," says anthropologist Alyce de Carteret of the Los Angeles County Museum of Art. This simple white headband was the signature attire of Huun Ajaw, one of the mythical Maya Hero Twins. The pair is described in the *Popol Vuh*, the epic of the K'iche' Maya of Guatemala, as having defeated a range of monsters and evil gods, allowing for the rebirth of their father, the Maize God. The diadem on these headbands often took a form scholars have named the "jester god," after the resemblance of its three-pointed head to the cap of a medieval jester. This god appears to have had its roots in representations of the maize plant. Maize was the foundational staple of the Maya diet and, according to the creation story told in the *Popol Vuh*, the substance from which the gods formed early Maya ancestors. Thus, it came to be seen as a symbol of royal authority. "We know that headdresses were immensely potent items, perhaps best exemplified by the exception that proves the rule," de Carteret says. "Captives are often shown nude, their disheveled hair falling to their shoulders. It's the ultimate expression of shame. Without a headdress, they are without power or protection."



A Late Classic stone lintel (left) from a structure at Yaxchilan in Chiapas depicts the wife of a newly installed ruler clad in a long brocaded outer garment called a *huipil*. She carries out a bloodletting rite that conjures a double-headed serpent. A warrior (above) is shown wearing black body paint and a cape made from the skin of a jaguar on a Late Classic vase from Chama in Guatemala.

CAPES AND CLOAKS

Ancient Maya men and women wore their capes and cloaks to just above the knee, draped around their shoulders or tied around their necks. These garments were generally made of woven textiles such as cotton, which could be dyed or painted various colors and decorated with colorful threads. They could also be fashioned from more exotic materials, such as jaguar pelts, which reinforced the power and authority of those who wore them. “Capes and cloaks are often associated with specific social situations in Maya art, and women appear to be portrayed wearing them less frequently than men,” says Langara College archaeologist Cara Tremain. Garments more commonly worn by women in these depictions include *huipiles*, which cover the shoulders, chest, and hips, and sarongs, which are tied under the arms.

A style of cape that appears to have been made from leaves was worn exclusively by Maya men with the *ch'ajoom* hieroglyphic title, who were involved in incense-scattering ceremonies. These leaves may have been intended to represent those from trees such as allspice, copal, or tobacco, all of which were burned as offerings. In addition, courtly messengers called *ebeets* were portrayed wearing white cotton cloaks, *Spondylus* shell ornaments around their necks, and quetzal feathers in their headdresses, which some scholars have suggested was a way of representing them as human tribute packages. Once in the presence of the king, some depictions indicate, they would strip down to their loincloths, removing these coveted items and offering them to their host.

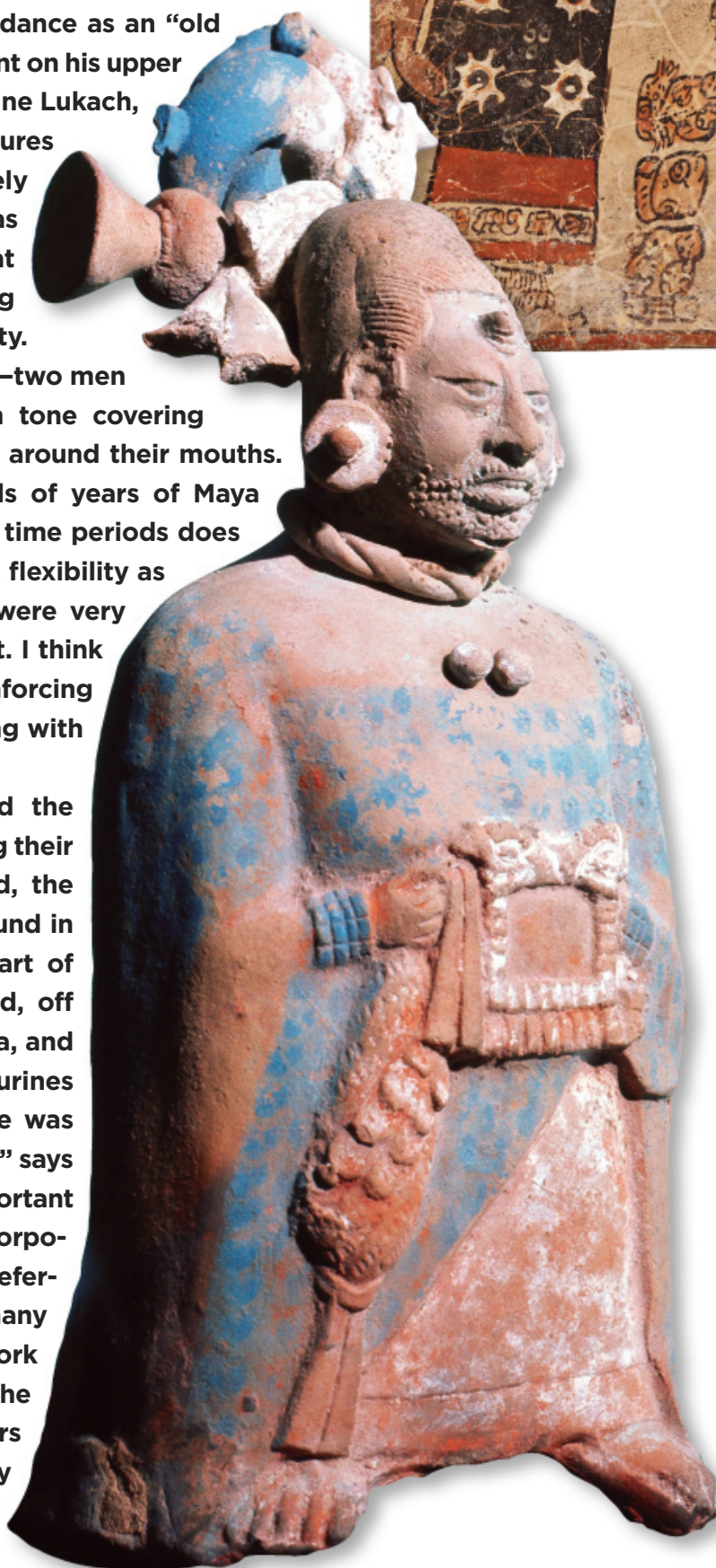
BODY ART

The ancient Maya possessed many techniques for using their skin as a canvas on which to project information about their social role and status. One of the most common of these was body painting, typically using red, white, and black paint, although there are also examples of brown and blue. Black body paint on men seems to denote roles that involve violence or penance—black paint marks the bodies of hunters, ballplayers, ritual bloodletters, those involved with sacrifice, and those undertaking ritual fasting. Shades and patterns of red and brown were employed to delineate more subtle distinctions of rank and status. On a Late Classic (A.D. 600–900) vase from Peten, a kneeling male attendant applies red pigment to the king's backside as he prepares to perform a dance as an "old god." The king has bold swirls of red paint on his upper body, which, says archaeologist Katharine Lukach, sets him apart from the other four figures on the vase. The queen, who is also likely outfitted to participate in the dance, has fine red lines painted below her eyes that were common in depictions of young women and may signify youth and beauty. By contrast, the three royal attendants—two men and one woman—each have a brown tone covering most of their bodies and light patches around their mouths. "We have representations of hundreds of years of Maya body paint, and the variation between time periods does not seem to shift dramatically given its flexibility as a medium," Lukach says. "The Maya were very preoccupied with proper comportment. I think body paint was just one more way of enforcing that, rather than a way of experimenting with new aesthetics."

Tattooing and scarification offered the Maya more permanent means of altering their appearance. During the Classic period, the best evidence for these practices is found in the northern lowlands and western part of the Maya world, including Jaina Island, off the west coast of the Yucatan Peninsula, and Palenque, in Chiapas. "Images and figurines from these regions show that the face was the favored site for these modifications," says Lukach, "suggesting that they were important to individual identity." Some tattoos incorporated hieroglyphic signs that may have referenced their owners' birthdays, which many Maya used as personal names. Scrollwork designs tattooed or scarred around the mouth represented breath, and viewers of such images would have immediately recognized the high status of those who sported them.



A Late Classic terracotta figurine (left) from Jaina Island off the west coast of the Yucatan Peninsula portrays an elite woman with extensive deliberate scarring around her mouth and above her eyes. A detail (above) from a Late Classic vase from the Peten region (full image on pages 42 and 43) depicts a Maya queen (above right) with red lines painted below her eyes and a female attendant (above left) with a light patch around her mouth.

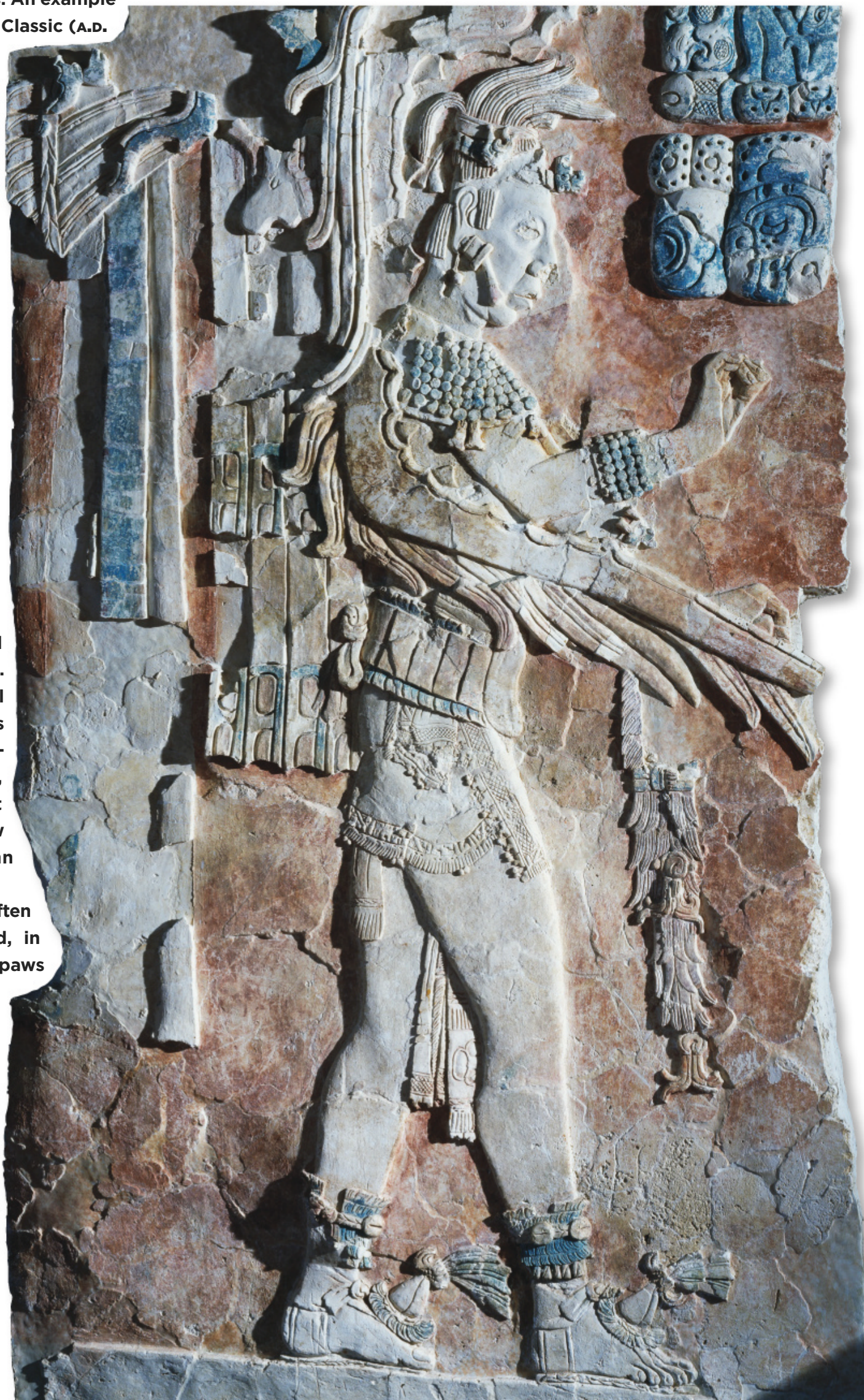


SANDALS

Maya sandals, which were typically reserved for use during travel and ceremonial events, ranged from simple, functional forms to ornate footwear that may have been used exclusively in specific contexts. An example of the latter is found in a Late Classic (A.D. 600–900) stucco panel from a temple at Palenque depicting an individual named Upakal K'inich. A caption on the panel refers to him as a *baah ch'ok*, or royal heir, and he is shown wearing an elaborate avian costume as he performs a ceremony. The soles of Upakal K'inich's sandals appear to have been woven, likely from reed or henequen fibers. An ornamental fastener on the bridge of the foot, which holds each sandal in place, is ringed by blue feathers at its base. More blue feathers sprout from the fastener's top. A leg wrap surrounding Upakal K'inich's lower calf also features blue feathers, and over the wrap is a woven strap with shell or clay bells, which would have tinkled with each twitch of the leg. "Like many items of ceremonial dress, elaborate sandals such as these were intended to be eye-catching, full of motion, color, and sound," says archaeologist Franco Rossi, currently a fellow at Brown University's John Carter Brown Library.

Ornate Maya sandals were often made from jaguar skins, and, in some cases, complete jaguar paws or bird claws—either real or replica—were incorporated into the footwear. Sandals could also be decorated with turtle shells that would make rattling noises to draw viewers' attention to a performer. Other examples had wooden soles or heels, and some even included stilts, that elevated the wearer.

A royal heir named Upakal K'inich is shown dressed for a public ceremony on a Late Classic stucco panel from a temple at Palenque. His elaborate costume includes sandals adorned with blue feathers and shell or clay bells.



A Late Classic vase portrays a female palace servant wearing paper earrings and holding a container of liquid.



PAPER EARRINGS

Many different types of earrings were worn by members of Maya society, but a particular style made from bark paper exemplifies how jewelry could be used to perform distinctly uncomfortable social roles and responsibilities. Paper for these earrings was made from the bark of mulberry or fig tree branches. One end of a long strip of the plain bark paper was used to pierce the earlobe, and the strip would then be worn hanging from the ear as a gesture of penance. “These paper ornaments were almost the Classic Maya equivalent of sackcloth and ashes,” says Harvard University archaeologist Nicholas Carter. When elite members of Maya society wore earrings of this style, they did so as a voluntary act.

Captives with no choice had their earrings replaced with paper ones as a form of abasement in preparation for being sacrificed. In both cases, the earrings would have been rough and uncomfortable to the wearer. The bark paper used in the earrings was also employed in bloodletting rites carried out on important days of the calendar. For these ceremonies, elite Maya men and women pierced themselves with obsidian lancets and worked stingray spines into the wounds. Their blood would then flow onto strips of paper that would later be burned as offerings. ■

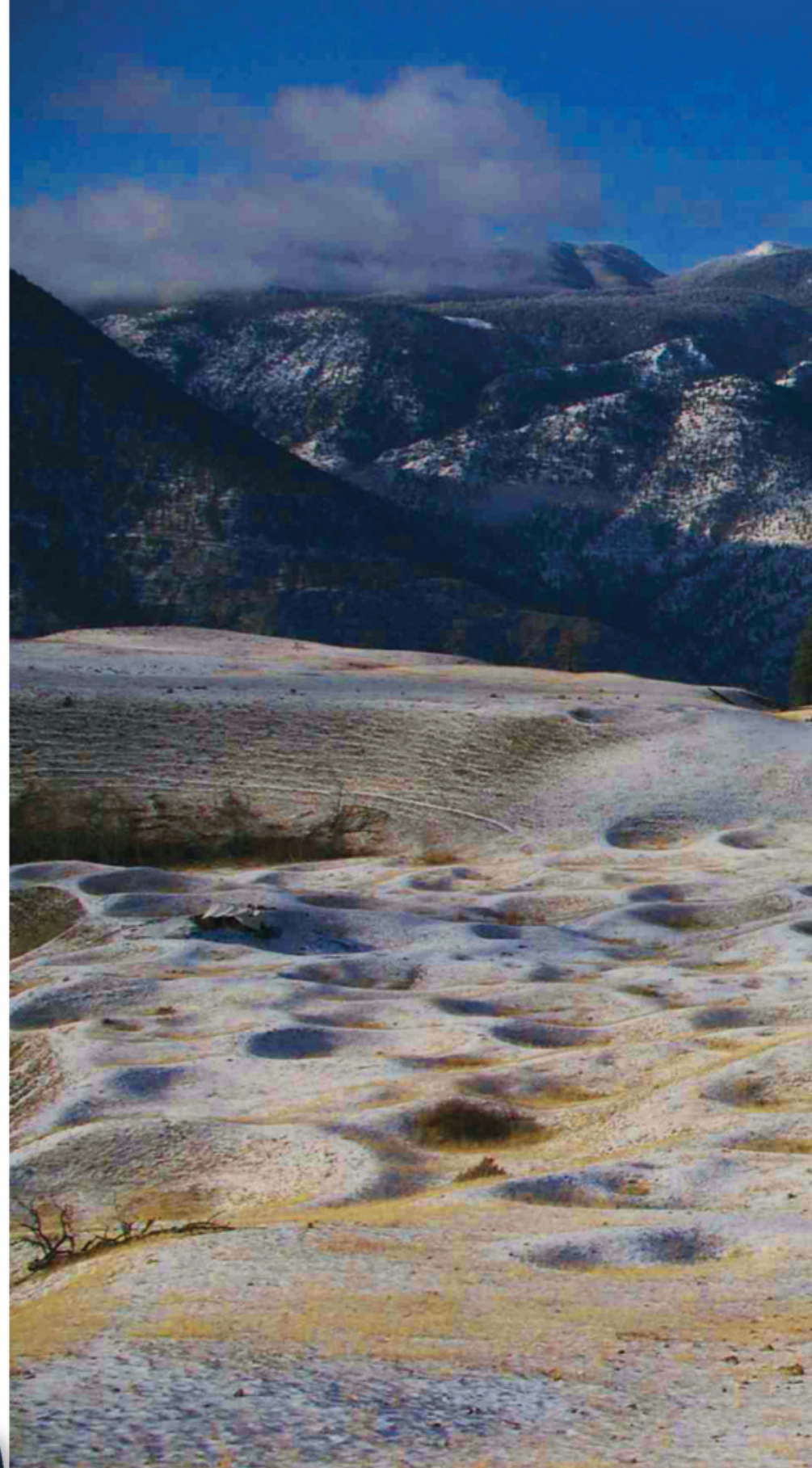
Lydia Pyne is a writer based in Austin, Texas.

THE POWER OF SECRET SOCIETIES

Clandestine groups throughout history have used shadowy rituals to control the world around them

by JULIAN SMITH

WHEN ARCHAEOLOGIST Brian Hayden of Simon Fraser University started working at the Keatley Creek site in British Columbia more than three decades ago, he was intrigued by nine small structures that had been clearly set apart from the main settlement. Located on a terrace above the Fraser River Gorge in the traditional territory of the Ts'kw'aylaxw (pronounced *Tskwai-lab*) First Nation, Keatley Creek was once one of the largest prehistoric settlements in what is now Canada. As many as 1,000 residents, who survived by hunting, gathering, and fishing, lived there at its peak around 1,000 to 2,000 years ago. Millennia of occupation left behind more than 115 depressions in the main settle-



Bone buttons unearthed in an isolated structure at the prehistoric site of Keatley Creek in British Columbia are among the rare artifacts found there that suggest the building was likely used for rituals.

ment, evidence of partially underground wooden dwellings called pit houses that were inhabited in the winter.

The nine structures that caught Hayden's attention were 300 to 600 feet away from the main group. Unlike the other dwellings at the site, they had rock-lined hearths and yielded rare artifacts including gaming pieces and shells from the Pacific coast. They also were near large roasting pits measuring up to 30 feet in diameter that suggested feasting had once taken place there. After many years of research, Hayden now believes that some of these distinctive buildings were used by members of secret societies to hold ceremonies with the ultimate goal of gaining influence over their fellow villagers.

Hayden says this is a pattern that can be found at ancient sites—from the painted caves of France's Upper Paleolithic period to California's Channel Islands—if you know what to look for. In his research, he has been guided by the work of ethnographers who have recorded the activities of secret



societies among indigenous groups around the world. By studying records of how members of these organizations tend to behave, he believes he can now identify their presence at other prehistoric sites as well.

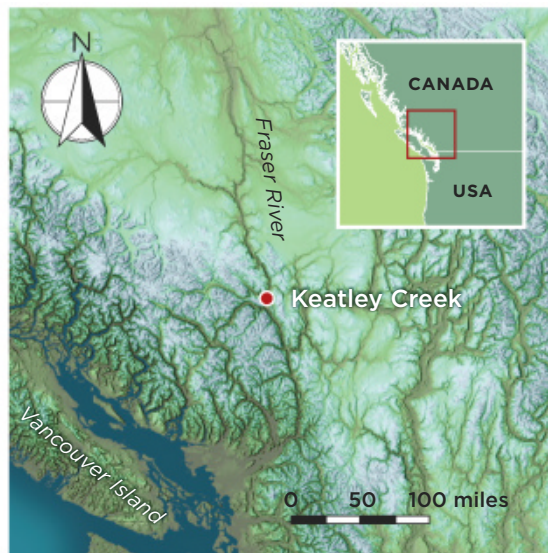
According to ethnographers, secret societies are exclusive, voluntary organizations that claim access to hidden bodies of knowledge and special skills. Researchers have described members of secret societies from the American Southwest to Africa engaging in lavish displays of seemingly supernatural powers to recruit members—putting live coals in their mouths, plunging their hands into boiling water, cutting people’s heads off and bringing them back to life—and guarding their secret methods on pain of death. While some scholars have argued that such organizations are a force that brings people together and reinforces the social order, Hayden thinks they are more often an avenue for an ambitious few to grasp—and keep—social control. Hayden also now believes that secret

societies played a much more important role in past cultures than archaeologists have previously thought. Their ritual practices, he says, may be behind the creation of monuments such as Stonehenge, and have likely had a decisive impact on the course of human history, the extent of which scholars are only now beginning to recognize.

HAYDEN’S INITIAL GOAL at Keatley Creek was to determine why the seasonal village was so large, and why it had pit houses measuring up to 65 feet in diameter, much bigger than those at other sites in western Canada from the same period. Then his team uncovered the nine small structures on terraces to the east and south of the center of the site. “We certainly weren’t thinking of secret societies when we began testing and excavating them,” Hayden says. “They were just curious outliers.” Initially, he thought the structures might have been used by migrants or poorer residents, or as women’s menstrual huts.

Around the time Hayden began excavating the structures, one of his students, D'Ann Owens, approached him for advice on a thesis topic. He suggested looking into a phenomenon that had always intrigued him—why did the walls of so many Upper Paleolithic caves in France have children's handprints? Were these marks evidence of some kind of ritual activity? And, if so, he wondered, what kind? Looking for parallels, Owens turned to ethnographies of historical hunter-gather societies in western North America, such as the Chumash of Southern California, and researched the roles children played in those cultures' rituals. She found that children in these groups were often included in the rites of secret societies. "Powerful members would try to initiate their children so they would have an advantage at obtaining more power and key positions," Hayden says. "It was a bit of a surprise." It seemed likely to both Owens and Hayden that children had left their prints on the walls as part of initiation ceremonies.

The idea that secret societies and their activities could potentially be identified in the archaeological record of hunter-gatherer cultures prompted Hayden to take another look at the nine small structures at Keatley Creek. Since the early 2000s, Hayden has worked with University of Toronto archaeologist Suzanne Villeneuve to understand how residents of the village used these buildings. They concluded that the structures' isolation and the fact that they were clearly used by people with access to high-value resources suggested that some of them could have been used by secret societies to conduct rituals in seclusion. In addition to the gaming pieces and coastal shells, other unusual artifacts had been recovered from the structures, including bone buttons, rare stones, bull-roarers—flat objects spun on the end of a cord to make a roaring sound—and tubes



fashioned from hollowed-out dog bones. Hayden's previous team had also uncovered dog burials nearby, some of which had bones wrapped in birch bark, suggesting that dogs may have played a role in rituals carried out in the buildings. "I think the interpretation of the specialized peripheral structures as secret society lodges is, by far, the most plausible explanation," he says.

The groups who carried out rituals around the rock-lined hearths in the Keatley Creek structures would likely have been the most powerful and ambitious people in the community, Hayden believes—but not necessarily those who had the greater good in mind. Although ethnographers working in hunter-gatherer communities have recorded rituals that appear to attempt to bring members of a community together in the interest of social cohesion, Hayden explains that members of secret societies just as often intimidate and dominate others, even as they fight among themselves, poisoning and killing each other in competition for power. "Far from working for the welfare of their communities, traditional secret societies emerged as predatory organizations operating for the benefit of their own members," Hayden says. "I found that almost everywhere I looked, they relied on intimidation, extortion, and exploitation of the poor."

IN ADDITION TO HIS WORK in British Columbia, Hayden has identified sites linked to secret societies in other areas around the world. Of particular interest to both him and Villeneuve are the Upper Paleolithic (ca. 40,000–10,000 B.C.) painted caves of Western Europe, the sites that first inspired Hayden to investigate the outlying structures at Keatley Creek. It is relatively easy to restrict access to a cave, he notes, and they are often full of dark, claustrophobic spaces perfect for small-group rituals. And, the walls of these particular caves are covered with multicolored paintings of animals, shapes, and humanoid figures, which, when lit by flickering torches, would have provided a perfect setting for intense spiritual ceremonies meant for a select few.

The caves of Font-de-Gaume, Les Trois Frères, and Lascaux in southwest France have been the focus of much of Hayden and Villeneuve's work. Both Font-de-Gaume and Lascaux have large chambers with space for a dozen or more people, decorated with particularly elaborate and visible paintings. Narrow corridors then lead to small alcoves with equally dramatic artwork, but only enough room for two or three people. One image in Lascaux of what looks like an aurochs bull goring a man with a bird's head is located at the bottom of a 20-foot shaft in a remote part of the cave, with room for just a single person.

Hayden and Villeneuve suggest that



A rock-lined hearth in one of the isolated structures at Keatley Creek differs from those found in the main settlement's pit houses. Some archaeologists believe secret societies met in these secluded buildings.

A painting (right, top) of a human figure with the head of a bird being gored by an aurochs bull is located in a deep shaft in the Upper Paleolithic cave of Lascaux (ca. 15,000 B.C.) in southwestern France. Other paintings (right, below) at Lascaux depict horses, aurochs, and deer.



these out-of-the-way spaces could have been restricted to high-ranking members of secret societies. Paintings on this scale would have been executed by highly skilled ritual artists and would have demanded resources to which only elite members of the community would have had access, from the materials for scaffolding to special pigments for paints. Most of the imagery in these caves is of animals, such as the horses, stags, and aurochs depicted at Lascaux. Humans in the paintings often have altered features including animal heads, suggesting either ritual costumes and masks or ceremonies where shamans would have entered into a trance state and transformed into powerful animals.

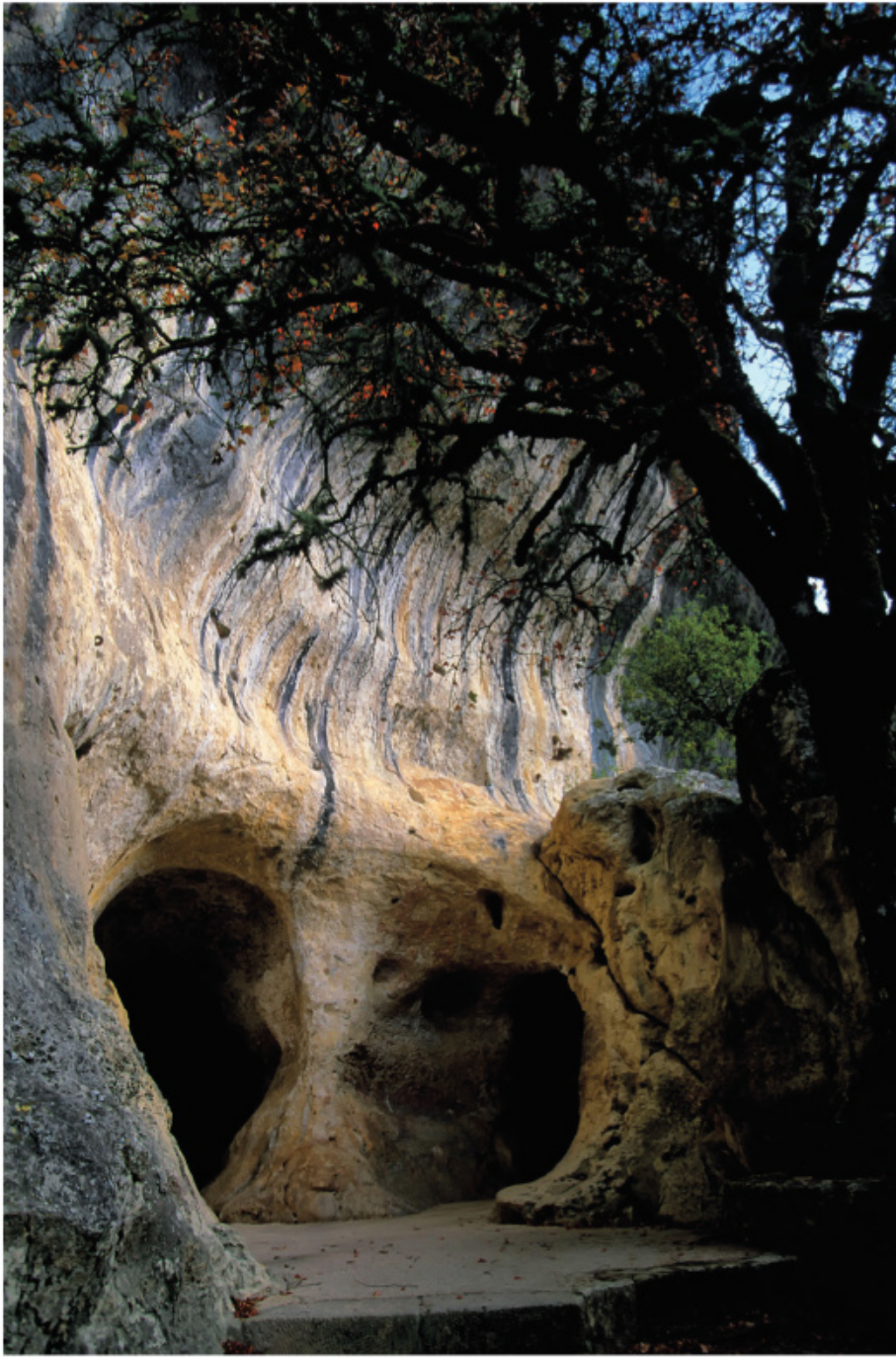
If the inner reaches of the caves were likely the most sacred areas, open only to small, exclusive groups, then the outer, unpainted spaces may have functioned as a kind of antechamber for those awaiting permission to enter. At Lascaux, the walls of these side chambers are covered with small, roughly carved images and scribbles that often overlap. A similar clutter of engravings behind a human-stag hybrid figure known as the Sorcerer is found at Les Trois Freres. Hayden believes these may be the prehistoric equivalent of doodles. Vil-leneuve's analysis of these panels showed that many of the images are low on the walls, and Hayden imagines their makers sitting or squatting, passing the time sketching on the nearest available surface. "They were made by individuals who were told to wait in given locations, probably because they weren't allowed to witness some things that transpired in the central chambers," Hayden says. "Perhaps they were new initiates or actors in ritual dramas waiting to make appearances in the main chambers."

Paintings aren't the only evidence of secret societies in these caves, says Hayden. Many Upper Paleolithic caves, including Lascaux and another called Bernifal, have entrances that are oriented toward the rising or setting sun on the summer or winter solstice. Astronomical knowledge would have been powerful in prehistoric times, and was probably restricted to very few.

Ethnographers have noted that such skills were developed and kept from common knowledge by secret societies in groups such as the Chumash. A number of secret societies are also known to have partaken in human sacrifice and cannibalism, and human remains with cut marks have been identified in at least 15 Upper Paleolithic sites in France.

Hayden's suggestion that secret societies controlled ritual power in the Upper Paleolithic period challenges the traditional notion that people of the time were egalitarian, with no class distinctions and equal access to resources. Emmanuel Guy, a specialist in European Paleolithic art, thinks Hayden makes a good case for the connection between cave art and ritual power. "It's becoming increasingly clear that the social organization of nomadic Upper Paleolithic populations, at least in some areas, was





The entrance to the cave of Font-de-Gaume in southwestern France may have been restricted to members of secret societies during the Upper Paleolithic period.

probably more complex than the vision usually given by prehistoric archaeology,” Guy says. “The common geography of art, ornaments, and burials throughout the Upper Paleolithic is consistent with the idea of secret societies controlling the resources and ensuring, through art and funeral rites, the transmission of their rights and privileges.” At the same time, he adds, it’s important to remember that ideology leaves little trace in the archaeological record.

However, prominent Paleolithic researcher Jean Clottes, who led the team that studied the paintings at Chauvet after the cave’s discovery in 1994, doubts that secretive, elite societies were part of European Upper Paleolithic culture. While he agrees with Hayden that the painted and engraved caves were probably spaces where ceremonies took place, Clottes believes the rituals were open to most members of the group. “The emphasis on power animals and animal motifs in cave art constitutes the basis of an Upper Paleolithic ‘religion’ that we find from beginning to end,” Clottes says. “There is no element of secrecy about that.”

Hayden acknowledges that all members of Upper Paleolithic groups were likely aware of the existence of the secret

societies, and even of their imagery. “They actively promoted the display of ritual symbols, often placing secret society iconography on any available public surface,” he says. These would have included images of animals, human forms, and geometric shapes on open rock surfaces and on bone tools. But Hayden maintains that true knowledge and true power were the privilege of a select few. He notes that there is enough evidence of activities such as cannibalism and of paintings made by specially trained ritual artists to suggest that the inner caves were the domain of secret societies. The possibility that secret societies may have been prevalent during the Upper Paleolithic suggests that our understanding of these cultures needs to be updated, Hayden argues. “The old view of Upper Paleolithic social groups as simple hunter-gatherers is no longer tenable.”

HAYDEN ISN’T THE ONLY researcher to have recently identified traces of the rites of secret societies at archaeological sites. Among the other locations where evidence has emerged for the pivotal role they played is on the western tip of Santa Cruz Island, off the coast of Southern California. There, archaeologist Lynn Gamble of the University of California, Santa Barbara, has led the excavation of an extensive site known as El Monton. Occupied between about 6,000 and 2,300 years ago by hunter-gatherers who were the ancestors of today’s Chumash people, the site includes 50 house depressions and a shell mound so large it’s visible from more than five miles away.

With the Chumash tribe’s permission, Gamble recently reexamined grave goods associated with a number of burials that were unearthed in three cemeteries atop the mound in the 1920s. A group of nine men and women had been laid to



rest with their bodies in extended positions, exceptional for the time—roughly 3,000 years ago—when the majority of people were buried in flexed positions. Some had been interred with precious items, including beads and ornaments carved out of black serpentine stone. One of the nine burials was especially unusual. A young woman was found with 157 shaped stone pieces, or effigies, some of which were painted. These accounted for almost all the effigies found in 200 burials at the site. “It’s likely that this young woman was recognized as someone with special significance and ritual power,” Gamble says. On the far side of the mound, about 30 yards from the house depressions, is a 100-foot-long oval depression aligned with the summer solstice. Gamble thinks this may have been used for dances or other ceremonies. Spanish records from the sixteenth century and ethnographers who later worked among the Chumash describe outdoor dance areas specially designated for ritual performances.

Gamble also points to wooden bull-roarers and whistles made from deer tibias found in Chumash burials on the mainland as further evidence of behavior possibly linked with secret societies. These artifacts may have been used by the *'antap*, an elite group of Chumash political and religious leaders. Members of this group, which still exists today, were admitted as children and were required to pay substantial amounts for the privilege. Their main duty was to



conduct rituals at open-air dance grounds, and they were the only ones allowed to own paraphernalia such as the deer bone whistles. The rituals both solidified the members’ station in society and ensured the fortunes of the larger group. “I don’t think secret societies were totally selfish,” Gamble says. “It’s a fine balance—if you take too much, people aren’t going to put up with it. You have to also give back to people.”

Like Guy, Gamble concedes that clear-cut evidence of secret societies can be elusive. “But if we don’t address some of these subjects that are difficult to identify in the archaeological record, I think we’re missing a lot,” she says. “We have a rich record of ritual objects, sweat lodges, dance houses—it makes sense that there were ceremonies being conducted, and that certain individuals were in charge of them.”

THIRTY YEARS AFTER HAYDEN first discovered the nine small structures at Keatley Creek, excavations there continue. Since 2006, they have been directed by Villeneuve, who has worked to understand what specific types of rituals people may have practiced in the structures. She is also exploring how the structures and the rituals performed there emerged and evolved over the course of the occupation of Keatley Creek.

There is no question that the presence of secret societies would have played an important role in the daily lives of people at Keatley Creek, Hayden says. “I’m sure it would have added quite a bit to the ritual and social life of the community.” Groups competing for members would have left their ritual structures to put on public displays of magical powers, featuring costumes, dancing, and singing. At the same time, members would also have intimidated people who weren’t cooperative and ensured their dominance over the larger group. It is this kind of behavior, and the fact that the

secret societies established social control, that Hayden believes is crucial to understand. He suggests that members of secret societies were the first to serve in roles akin to priests, and the first to institutionalize power as hunter-gatherers evolved from egalitarian groups to ones in which inequality and social differentiation first appeared. “In essence,” says Hayden, “I suggest that secret societies created the foundations from which the world religions of the last three millennia emerged.” As time went on, these groups’ focus on power and social control would have played a vital role in the emergence of complex political systems throughout the world. ■



Whistles (left) carved from deer bones were discovered on the Southern California mainland in burials of Chumash people. The instruments may have been used by members of the *'antap*, a secret society that still exists. A mound (above) at El Monton on Santa Cruz Island held the burials of powerful members of the Chumash. A photograph (top) taken in 1878 shows a member of the *'antap* wearing ceremonial regalia.

Julian Smith is a contributing editor at *ARCHAEOLOGY* and a coauthor of *Aloha Rodeo*.



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Troops from the U.S. Army's First Infantry Division waded into the waters of the Bay of the Seine towards Omaha Beach on June 6, 1944, in a photo taken at 7:40 a.m. by Coast Guard Chief Photographer's Mate Robert F. Sargent entitled "Into the Jaws of Death."

LETTER FROM NORMANDY

THE LEGACY OF THE LONGEST DAY

More than 75 years after D-Day, the Allied invasion's impact on the French landscape is still not fully understood

by **JARRETT A. LOBELL**

United States Army Air Forces 2nd Lt. William J. McGowan was 23 years old when he died near the village of Moon-sur-Elle in northern France. McGowan had grown up in the small town of Benson in western Minnesota, where he loved to ski. He attended Benson High School, St. Thomas Military Academy, and then the Missouri School of Journalism, where he received his degree in 1942. He worked as a journalist and editor, first for the United Press news service in Madison, Wisconsin, and then for his hometown paper, the *Swift County*

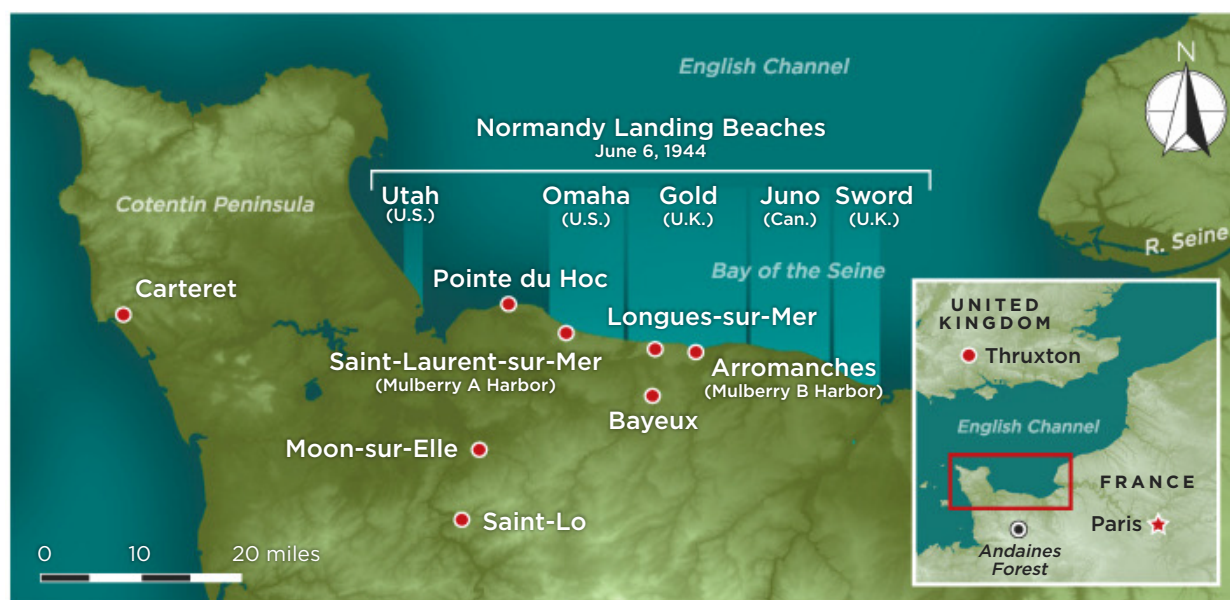
Monitor-News, of which his father was the editor and publisher.

In 1943, McGowan was called to Eagle Pass Army Airfield in southern Texas for training. In December, he earned his pilot's silver wings and his commission. A month later, he moved on to Harding Airfield in Baton Rouge for flight training on the P-47 Thunderbolt, the beloved workhorse of World War II American aviation. There he married Suzanne "Suki" Schaefer of Winona, Minnesota, and two months later was sent to England aboard *Queen Mary*. On May 15, he

joined the 391st Fighter Squadron, 366th Fighter Group. Between May and June 5, McGowan made 10 sorties and flew four combat missions.

At 3:15 p.m. on June 6, 1944, D-Day, McGowan set out from Royal Air Force Thruxton in Hampshire in southern England on a mission to target the Lison train station and enemy convoys moving northeast toward Bayeux. According to the Missing Air Crew Report given by his wingman, Flight Officer Paul E. Stryker, the next day, after they seized "a target of opportunity" and dropped their fragmentation

LETTER FROM NORMANDY



bombs on a passing German train, McGowan's Thunderbolt was hit by antiaircraft fire at 500 feet, too low for him to safely parachute from his plane. "I was taking evasive action and about 1000', I noticed his plane was in flames and was going into a spin," relayed Stryker. "He spun it to the ground and the whole ship burst in to flame."

Three years later, a team from the American Graves Registration Command (AGRC) visited an area where French civilians described having seen a downed aircraft burning for a full day in a field near Moon-sur-Elle. The AGRC team removed pieces of the wreckage, some of which was embedded up to four feet in the ground, and identified the plane as McGowan's using a serial number on one of its machine guns. Tiny pieces of charred human remains villagers had found in 1944 and buried under the plane's propeller had disintegrated. The villagers had also located McGowan's dog tags, and had given them to American troops setting up antiaircraft batteries in the field. McGowan was declared unrecoverable and the AGRC recommended "no further action be taken."

But, more than 60 years later, on a return trip to Moon-sur-Elle in 2010, a team from the Joint POW/MIA Accounting Command (now the Defense POW/MIA Accounting Agency, or DPAA), resurveyed the wreck site, reinterviewed witnesses, and found additional aircraft debris. Upon

learning that the land where the crash site is located had been put up for sale, DPAA recommended that it be excavated and invited archaeologists and students from the forensic aviation course at Nova Scotia's Saint Mary's University to Normandy. During their one-month field season in the summer of 2018, the team excavated 861 square feet of cornfield, where they unearthed human teeth, small pieces of bone, fragments of aircraft, 350 .50 caliber projectiles and casings, and an Army Air Corps officer's collar insignia pin. Using the pin and dental records, the remains were eventually identified as McGowan's. And, while the effort to identify missing World War II personnel in all theaters continues, much depends on testimony of eyewitnesses, few of whom survive, and such successes, particularly in the European Theater, are rare.

The archaeology of D-Day and the Battle of Normandy is not confined to a search for downed aircraft and missing persons. Given the colossal military, engineering, and personnel scale of the D-Day landings and the subsequent

battle for France that raged for 80 days until the liberation of Paris on August 25, vast amounts of evidence of men and materiel survive for archaeologists to explore and document. Concrete gun emplacements, bunkers, and batteries of the Atlantic Wall still pepper the battle-scarred coastline and fields of Normandy, and rusted amphibious vehicles that sank or were stranded before reaching Omaha Beach still lie in the Bay of the Seine. Artifacts including tanks and jeeps, tins of food and tubes of shaving cream, weapons, ammunition, and hel-

rets are collected in the museums that dot the Normandy shoreline, the buildings' large glass windows framing views of the bay and beyond, to England. And tens of thousands of soldiers and civilians are buried in the region's cemeteries, and some, perhaps many, still lie in its rich soil.



U.S. Army Air Forces 2nd Lt. William J. McGowan (above) poses in front of his training aircraft. This Army Air Corps officer's pin (left) found in Moon-sur-Elle, France, helped identify McGowan's remains.

The landscape, too, provides archaeological evidence of the campaign. Individual foxholes and millions of bomb craters pock the forest floor of the woodlands where the Germans set up their supply depots. Disjointed remnants of the artificial harbors at Arromanches and Saint-Laurent-sur-Mer jut from the bay, especially at low tide. And there is even evidence of D-Day in the sands of Omaha Beach. On that six-mile stretch of light-gray sand, where 34,250 American troops landed, researchers have identified shrapnel as well as iron and glass beads created by munitions explosions nearly eight decades ago, minuscule pieces of evidence of the cataclysmic events of that day.

Archaeologists studying D-Day and the Battle of Normandy face many challenges, not least of which is that the erasure of material evidence began the day after the war ended, says archaeologist Vincent Carpentier of France's National Institute of Preventive Archaeological Research. The rebuilding of towns damaged in the war, urban development, and agriculture have obliterated evidence of battle sites. Coastal erosion, sea level rise, and weather threaten the remnants of the Atlantic Wall and artificial harbors. And thieves have taken artifacts and damaged sites. Nonetheless, what began in the 1960s and 1970s as "bunker archaeology" conducted by amateurs is now a rapidly growing discipline focused on survey, documentation, excavation, and protection.

In light of successful archaeological

studies conducted across Europe at World War I sites and the recent passing of that conflict's 100th anniversary, scholars' attentions have shifted to the next great twentieth-century conflict. "The Second World War, like the First, was once thought to be so well documented historically that archaeology could add nothing and that these events were too recent to be excavated," says University of Bristol archaeologist Nicholas Saunders. "We now know that nothing could be further from the truth—the First World War has led the way, but the Second is catching up fast. We



A compass belonging to an American parachutist was discovered in the village of Saint-Germain-de-Varreville located near Drop Zone A for the 502nd Parachute Infantry Regiment.

are on the cusp of time where history becomes archaeology and the last eyewitnesses are passing on."

Yet World War II archaeologists are confronted by a different landscape. "The landscape legacy of combat operations in the Western European Theater of World War II is very different from that of World War I," says University of Toronto geographer and archaeologist David Passmore. "Instead of static and heavily cratered

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LETTER FROM NORMANDY



One of the casemates of the Longues-sur-Mer battery still stands with its 155 mm gun in situ.

trench lines, World War II's combination of mobile warfare and air power left abundant earthwork field fortifications for shelter and combat alongside shell and bomb craters, even well behind the front lines. Despite the massive damage done to the landscape during the war, though, there is very little to see of the actual battles in the modern landscape."

In May of 1942, Hitler decided that in order to defend Fortress Europe against an Allied invasion, he needed a 2,400-mile wall stretching from Scandinavia to Spain. More than 4,000 acres of concrete and 5 percent of Germany's annual steel production—equal to that used for all the tanks built that year—were employed to build portions of the Atlantic Wall in preparation for the anticipated Allied landings in France. Up until then, the Germans' emphasis had been on defending ports such as Calais where they were confident the landings would take place. But Field Marshal Erwin Rommel, who had taken over supervision of the wall's construc-

tion in 1943 and harbored, along with many of Hitler's military advisers, grave doubts about its efficacy, focused instead on the poorly defended lower Normandy coast. There, the Germans erected hundreds of steel defensive obstacles and built batteries, bunkers, and casemates, some of which were even painted in *trompe l'oeil* to look like houses, seaside cafes, and bars overlooking the coast's sometimes sunny but often stormy beaches.

Archaeological investigation of many Atlantic Wall sites has focused on construction methods, gun locations, and how complete these defenses were on June 6, which was, Carpentier says, "often very different from the official standards detailed in the archives." Using information gathered during geophysical survey and excavations, archaeologists have showed that, although the Second World War marked a high point in the production of weaponry and military installations, many of the Atlantic Wall structures were hastily built using a restricted range of available materials. For example, explains Carpentier, contrary to German propaganda, concrete was actually used more sparingly than brick, wood, and stone. Researchers have also been able to create a typol-

ogy and chronology of techniques and materials employed across many Atlantic Wall sites. Far from serving just as a catalog, this has enabled them to identify variation between structures built between 1940 and 1943 and those built after 1943, whose construction Carpentier describes as "anarchic"—a clear product of Hitler's increasing paranoia over the threat of invasion.

One of the best preserved of the 30 German batteries that defended the landing beaches is at Longues-sur-Mer. It consisted of four massive concrete casemates built in 1943 about 1,000 feet inland from the coastline between Gold and Omaha Beaches. Each casemate housed one 155 mm gun. Unlike most other metal armaments, which were removed for the raw materials or stolen after the war, one of these guns remains in situ.

In the end, Hitler's wall was an arrogant folly. Most of the coastal batteries were disabled by bombing runs before the landings or quickly overrun, and the Atlantic Wall was breached in a single day. The most harrowing breach came at Pointe du Hoc between Utah and Omaha Beaches. At 5:50 a.m., the U.S. Navy started to bombard the point. Less than an hour and a half later, men of the 2nd Ranger Battalion disembarked from their landing craft and began to scale the 100-foot cliffs under enemy fire, reaching the top by 7:40 a.m. Although the Germans had previously moved the massive guns pointed directly at Utah Beach, the Rangers soon located them hidden in the thick hedgerows known as the *bocage* and destroyed them.

The story of the Allied victory in Europe is often told as one of air superiority. At no time was this advantage more manifest than just before, during, and immediately after D-Day. Between June 5 and 6, the

(continued on page 62)

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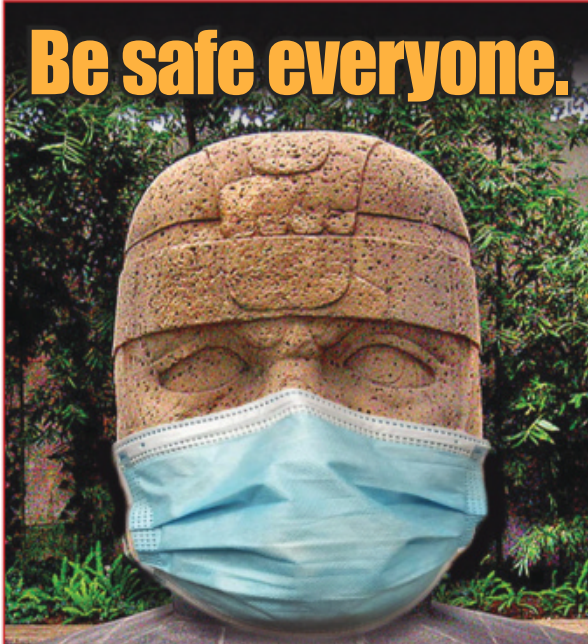
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LETTER FROM NORMANDY

(continued from page 60)

Allies dropped 18,000 tons of bombs on the Normandy coast, countryside, and forests, killing and wounding thousands of soldiers and civilians, and destroying or disabling fortifications, road and rail networks, and supply facilities behind the beachheads. But unlike the agricultural fields, where large bomb craters were quickly filled in after the war, “it is in the woodlands and forests where archaeological evidence of combat can still be found,” says Passmore. “Here is a landscape that is telling you something, and you have to try to understand it.”

Much of Passmore’s work has focused on large, well-preserved German ammunition and fuel depots in several of Normandy’s larger forests. Passmore says that, at first, he and his team, which includes geographer Stephan Harrison of the University of

Exeter and historian and geographer David Capps Tunwell of the University of Caen, were surprised to see that the huge earthwork bunkers that are the distinctive archaeological signature of these facilities still existed. Due to the danger of unretrieved live ordnance and French laws governing management of national forests, there has been no opportunity for archaeologists to excavate these structures. But by using noninvasive field mapping, survey, and lidar, the team has been able to determine the number and geographical distribution of fuel and ammunition bunkers at several depot sites and to compare their findings with German army logistics records. In Andaines Forest, for example, nearly 900 individual earthwork features, including storage bunkers, trenches, and vehicle shelters, have been mapped in Lager Berta and Lager Martha, among the largest fuel and ammunition depots, respectively, in Normandy prior to D-Day.

The landscape of Andaines Forest also helps illuminate the dominance of air power in the Normandy campaign. “We have very well-preserved bomb-crater evidence of Allied air raids conducted during June and July of 1944,” says Passmore. “It’s interesting to look at the narratives around the campaign and at what assumptions were being made, especially about how well, or poorly, supplied the Germans were. There’s a fascinating story starting to emerge of where the Germans stored the fuel they did have, of how the Allies gathered intelligence, and of how successful they were at targeting these sites.” For example,

extensive cratering around Lager Berta testifies to the effectiveness of aerial attacks, and it is known from German records that the fuel depot had to be abandoned a few days after a major raid on June 13 conducted by the U.S. 397th Bomb Group in B-26B Marauders. “It’s interesting to note that Allied intelligence failed to properly identify or target Lager Martha, and that this major ammunition depot continued to operate until being overrun by American forces on August 14, at which point it still held substantial stocks of ammunition,” says Passmore. “These lines of evidence illustrate the difficulties faced by the Allies both in gathering intelligence on the supply depot network and in accurately striking those targets concealed in large forests.”

Bomb-cratered landscapes can also tell the heartrending tale of the civilian cost of Allied air operations over Normandy. In the daily operational records of air squadrons, it is rare to find any acknowledgment that attacks on targets in towns, villages, and the surrounding countryside may have incurred civilian casualties, Passmore says. But it is becoming clear as research continues that as many as 60,000 to 70,000 French civilians died as a result of air attacks in support of the Normandy campaign and later operations across France. “This narrative warrants more attention,” says Passmore, “and archaeology can make a significant contribution by carefully documenting the survival of landscapes that testify to the extent, range, and intensity of the attacks that brought civilians in harm’s way tens, or even hundreds, of miles behind the front.”

The D-Day landings were only the beginning of the Battle of Normandy. As the Allied soldiers advanced beyond Omaha, Utah, Sword, Gold, and Juno Beaches, an astonishing engineering project was



An Allied bomb crater was identified at the location of Lager Berta, a large German fuel depot in France’s Andaines Forest.



Remains of the artificial harbor known as Mulberry B jut from the waters off Arromanches.

undertaken in the same waters across which tens of thousands of troops had traveled from England. Codenamed Mulberry, two artificial harbors, one

off Omaha Beach at Saint-Laurent-sur-Mer (Mulberry A) and the other off Gold Beach at Arromanches (Mulberry B) were constructed by the Brit-

ish in just 12 days after the landings. These harbors, composed of concrete caissons and steel roadways that had been made in the United Kingdom in secret and towed across the Channel, along with ships to scuttle and steel-reinforced caissons to sink to create breakwaters, were swiftly operational. Mulberry A was so severely damaged by a storm on June 19 that it had to be abandoned, but Mulberry B was used for 10 months, allowing more than four million tons of supplies, half a million vehicles, and more than 2.5 million men to land on the continent.

For the 60th anniversary of the D-Day landings in 2004, a concerted effort was begun to document and conserve the remains of the harbors, which had been threatened by looting for six decades, and more recently

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LETTER FROM NORMANDY



A corroded British helmet was discovered on Sword Beach with the painted band that allowed archaeologists to identify it as belonging to a member of the Pioneer Corps.

by sea level rise. By diving and using sonar, archaeologists have surveyed more than 1,200 acres and documented more than 600,000 tons of concrete remains, 3.5 miles of jetties and dikes, 33 landing platforms, and nine miles of floating pontoons, along with sunken vehicles, including at least 30 Sherman tanks once destined for the roads to Berlin.

By day's end on June 6, the Allies had gained a foothold on the continent, but at tremendous cost—2,499 American soldiers lost their lives that day. For more than seven decades, one of these soldiers, 2nd Lt. William J. McGowan, lay in the field where he had died. But in 2021, following his family's wishes, the Air Medal and Purple Heart recipient will be buried at the Normandy American Cemetery in Colleville-sur-Mer overlooking Omaha Beach. McGowan's uncle, for whom he was named, is also buried in France, at the Meuse-Argonne American Cemetery north of Verdun, where 14,246 men who died in World War I lie.

McGowan will likely be the last American soldier to be interred in the Colleville-sur-Mer cemetery's hallowed ground, as the rules for burial there are strict, and it has become difficult for the military to verify details of service. A bronze rosette will be placed next to his name on the cemetery's Wall of the Missing to signal that he has been accounted for—only the twentieth such marker

for the 1,557 missing soldiers of D-Day and the Battle of Normandy who are listed there.

In many ways, McGowan's story since the evening of June 6, 1944, embodies the archaeology of D-Day. There are primary sources such as military records and photographs and eyewitness testimonies including Stryker's report and the memories of the villagers. Surveys and excavations



The memorial dedicated in 2011 by villagers in Moon-sur-Elle to 2nd Lt. McGowan is adjacent to the field where he died.

have uncovered artifacts, including pieces of McGowan's plane, and the site has been heavily disturbed by decades of farming. And the impending sale of the land compelled the most recent fieldwork, which used the latest scientific techniques.

In 2011, near the spot where his remains were found, villagers dedicated a stone monument to McGowan. In attendance at the

ceremony were Agnes de Puthod and Pierre Labbé, both of whom, as children, had witnessed McGowan's P-47 Thunderbolt crash, and both of whom described seeing him directing his plane toward the field to avoid hitting the village.

The inscription on the memorial plaque reads:

*Lest We Forget
En hommage à l'aviateur Américain
Lt. William J. McGowan
Age 23 from Benson, Minnesota, USA
Who gave his life near this location
D-Day 6 June 1944
"Let there be Peace on Earth, and let it
begin with me"*

At the end of World War II, nearly 79,000 U.S. service members were missing. At the time the announcement that McGowan's remains had been identified was made in January 2020, 72,639 were still unaccounted for. At least 30,000 of them are thought to be recoverable. ■

Jarrett A. Lobell is editor in chief at ARCHAEOLOGY.



As this issue of “Dispatches from the AIA” was being put together, the majority of the world was in some level of lockdown in response to a global pandemic. We hope that by the time you read this, we will all be emerging from these unprecedented circumstances. In the meantime, like many other organizations around the world, we are confronting the reality of COVID-19 and its effects. The AIA and our local societies have canceled or postponed all public programs and shifted our efforts to digital platforms. We have increased our online presence and promoted resources and activities that people can participate in from the safety of their homes to learn about the incredible achievements of the past. In the coming weeks and months, we will provide more online resources, and we will also plan for the reality that many of our fall events may be held electronically. Please stay safe and know that the AIA remains committed to bringing you the wonder of archaeology.

AIA'S NEW EXECUTIVE DIRECTOR



We are excited to introduce the AIA's new executive director, Rebecca W. King. King comes to the AIA from North Benet Street School in Boston, where she was executive vice president. Her educational background includes training in anthropology and professional fundraising, and she has an MA in international affairs from The George Washington University.

King's prior successes with managing nonprofit organizations and her extensive experience with education and fundraising established her as the candidate who would best serve the needs of the Institute and its members. Her leadership will be essential to the AIA as we move forward with our goals of supporting professional archaeologists, informing the public, and advocating for the preservation and protection of cultural heritage around the world. For more information, visit archaeological.org/aia-welcomes-new-executive-director.

INTERNATIONAL ARCHAEOLOGY DAY WILL CELEBRATE ITS 10TH ANNIVERSARY



Saturday, October 17, 2020, is the 10th International Archaeology Day (IAD). What was initially conceived of as a celebration for the AIA and its local societies has become a truly global phenomenon, enjoyed across the United States and in close to 30 countries around the world. Our plans were to make the 10th annual IAD the biggest and most diverse one yet. The reality of COVID-19, however, has forced us to alter these plans

and, although we hope safe in-person events will be possible in the future, at this time we are focusing on online programs. As we get closer to October 17, we will provide more online content and promote activities designed by both the AIA and our collaborating organizations. For more IAD news and updates, visit archaeologyday.org regularly.

ARCHAEOLOGICAL INSTITUTE OF AMERICA MISSION STATEMENT

The AIA promotes archaeological inquiry and public understanding of the material record of the human past to foster an appreciation of diverse cultures and our shared humanity. The AIA supports archaeologists, their research and its dissemination, and the ethical practice of archaeology. The AIA educates people of all ages about the significance of archaeological discovery and advocates for the preservation of the world's archaeological heritage.



DISPATCHES

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Olympia, Greece, Irwin H. Segel

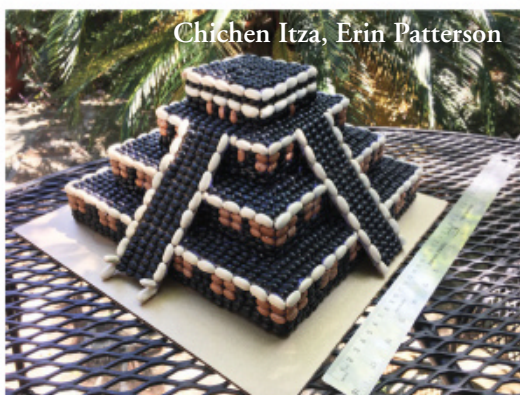
2020 AIA PHOTO CONTEST RESULTS

For this year's contest, we received nearly 200 archaeology-themed photos taken in more than two dozen countries. Public voting took place between March 31 and April 6, 2020, and each of the winners will receive a complimentary one-year AIA membership. Top photos selected by AIA staff will also be included in the AIA's 2021 calendar. Proceeds from the sale of the calendar benefit the AIA's Site Preservation Program. Thank you to all the participants and congratulations to the winners. To view the results, visit archaeological.org/2020-aia-photo-contest-results.

BUILD YOUR OWN MONUMENT COMPETITION



Stonehenge, Alexandra McNamara



Chichen Itza, Erin Patterson



Giza Pyramids, Sydney Berkowitz

Originally planned for the fall as a lead-in to IAD, the Build Your Own Monument Challenge was moved to April and May as an activity for those looking for at-home activities. We challenged people to use materials they had on hand to re-create iconic monuments from around the world: Stonehenge, the Temple of Kukulkan (El Castillo) at the Maya site of Chichen Itza, the Roman Colosseum, and the Pyramids of Giza. Submissions were divided into three categories: Youth (K–12), Family, and Adult. Winners were selected both by celebrity judges and popular vote.

We received dozens of entries in each of the monument categories, made with a variety of materials—wooden blocks, marshmallows, modeling clay, and more. Popular entries included “Cheesehenge,” a replica of Stonehenge made with blocks of cheese and bread, the Temple of Kukulkan built with beans, a Colosseum cake, and pyramids made of matzo. We salute everyone who submitted their projects and sent their photos. Your creativity inspires us! A complete wrap-up of the competition and the results can be seen at archaeological.org/build-your-own.

AIA AWARDS \$380,000 TO ARCHAEOLOGICAL PROJECTS AROUND THE WORLD

The AIA has awarded \$380,000 in grants to 36 archaeological projects around the world. These grants will support excavation, analysis, and research in more than a dozen countries, a site preservation project in Egypt, and several publications, and will provide seven students with the opportunity to participate in their first field project.

Twelve of these projects were funded under a new AIA-NEH Grants for Archaeological Research program, which awarded almost \$250,000 to projects in the United States, Belize, Cyprus, Greece, Iraq, Italy, Morocco, and Serbia. The AIA-NEH program supports traditional archaeological research and excavation, and also fills a gap in funding opportunities for post-fieldwork analysis that leads to publication.

Read about AIA grants and fellowships at archaeological.org/grants.

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The Roman Empire’s thousands of miles of territory required hundreds of thousands of soldiers to guard and maintain it. In addition to weapons, armor, and clothing, an item few of these soldiers would be without was a type of canteen called a *laguncula*. At some point, one Roman legionnaire deposited this valuable piece of his equipment in an offering pit at a small sanctuary in southern Gaul. Recent excavations conducted in advance of construction by France’s National Institute of Preventive Archaeological Research (INRAP) revealed the previously unknown sanctuary, which consisted of two small temples, an additional ritual building, and 42 votive pits. The deity worshipped there remains unknown. “There isn’t any conclusive evidence of which god the sanctuary was dedicated to,” says INRAP archaeologist Sylvain Motte. “It was probably a private rural place of worship.”

While the votive pits contained numerous metal artifacts, including assorted dishes and a small bust of a god that once decorated a piece of furniture, the canteen—one of only three complete examples found in Gaul—was in the best condition of all the objects the team found, so much so that even its contents were preserved. When these contents were analyzed, they were found to consist mainly of millet, mixed with a small quantity of blackberries and dairy products, all of which had been heated, and traces of conifer resin. “The context in a sanctuary pit and the fact that the food was all cooked suggests that not just the canteen, but also the contents were a sacrifice of some kind,” explains Motte. “The objects used in these ceremonies were then buried to ensure that the offerings couldn’t be reused.”



WHAT IS IT
Laguncula (canteen)
CULTURE
Roman
DATE
End of 1st to end of 3rd century A.D.
MATERIAL
Iron and copper alloy
FOUND
 A map of France with a red star marking Paris and a red dot marking Seynod in the south. The word "FRANCE" is written in the center.
DIMENSIONS
6.5 inches high, 4.4 inches wide, weight 1 pound



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